DOCUMENT RESUME

ED 141 427 UD 016 921

AUTHOR	Peskin, Janice
TITLE	In-Kind Income and the Measurement of Poverty. The Measure of Poverty, Technical Paper VII.
INSTITUTION	Department of Health, Education, and Welfare, Washington, D.C. Office of the Assistant Secretary for Planning and Evaluation.
PUB DATE	6 Oct 76
NOTE	91p.; For related documents, see UD 016 918-929 and UD 017 087; Best copy available
AVAILABLE FROM	Office of the Assistant Secretary for Planning and Evaluation, Department of Health, Education, and Welfare, 200 Independence Avenue, S.W., Room 443D-South Portal Building, Washington, D.C. 20201
EDRS PRICE	MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS	*Conceptual Schemes; *Income; Low Income Groups; *Measurement; *Measurement Techniques; Models; Poverty Programs; *Poverty Research; Public Housing
IDENTIFIERS	Food Stamps; *In Kind Income; Medicaid; Medicare

ABSTRACT

This technical paper summarizes what is known about the receipt of in-kind income; that is, benefits that take a non-cash form. These benefits may be provided by the government (food stamps, Medicare, etc.), or the private sector (health insurance, free housing, etc.). The problem addressed in the paper is the development of a theoretically acceptable, yet empirically implementable, methodology for converting in-kind income into its equivalent cash income from the perspective of the direct recipient. The conversion depends on the preferences of individual recipients and on the precise parameters of the in-kind subsidy. The paper focuses on four types of in-kind benefits (food stamps, public housing, Medicaid, and Medicare) since data on other types of in-kind benefits are sparse. For these four types, impacts across families and across states are sizeable. The paper also discusses how to value the increase in income from in-kind subsidies and it shows how individual recipients may be affected differently by the receipt of in-kind income. Some of the findings include the following: (1) in-kind income makes many persons and families better off, though they may not be better off to the full extent of the provider outlays on the in-kind goods; (2) in order for in-kind income to be treated consistently with cash income the provider cost of in-kind subsidies must be reduced to its cash equivalent value to recipient families; (3) empirical findings show the cash equivalent value of various in-kind subsidies to be significantly below government cost, and (4) the average cash equivalent values will vary sharply across families by income level, family size, and other demographic characteristics. (Author/AM)

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THE MEASURE OF POVERTY

Technical Paper VII

In-Kind Income and the Measurement of Poverty

By: Janice Peskin
Office of Income Security Policy

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October 6, 1976

Virginia Trotter
Assistant Secretary for Education
Department of Health, Education,
and Welfare

William A. Morrill
Assistant Secretary for Planning
and Evaluation
Department of Health, Education,
and Welfare

I am pleased to forward Technical Paper VII, "In-kind Income and the Measurement of Poverty". It contains supporting data for the report entitled The Measurement of Poverty which was prepared in compliance with section 823 of the Education Amendments of 1974. This paper was prepared by Janice Peskin, Economist, Office of Income Security Policy, Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health, Education, and Welfare. The views presented are those of the author and not necessarily those of members of the Poverty Studies Task Force.

This paper examines the technique of valuing in-kind subsidies in order to obtain cash income equivalents. Thus, it analyzes in-kind income solely from the perspective of the direct recipient of such goods and services. The paper was not intended to explore all the ways in which different kinds of income -- cash, goods and services in-kind, leisure or other psychic benefits, preferential treatment, etc.-- can be combined into a single income measure with which people's incomes can be ranked. Research to evaluate a variety of methodologies for valuing in-kind income subsidies for the purpose of improving income measurement and measures of program effectiveness is continuing within the Department of Health, Education, and Welfare.

Bette Mahoney

Bette Mahoney
Chairman
Poverty Studies Task Force

PREFACE

> Section 823 of the Education Amendments of 1974 (PL 93-380) requires a thorough study of the manner in which the relative measure of poverty for use in the financial assistance program, authorized by Title I of the Elementary and Secondary Education Act of 1965, may be more accurately and currently developed.

That financial assistance program is administered by the Commissioner of Education, through the Office of Education, Department of Health, Education, and Welfare. An important feature is the use of a formula prescribed by Section 103 of the Elementary and Secondary Education Act for the annual distribution of Federal funds to school districts. A significant factor in the formula is the number of school-age children 5 to 17 in poor families within each school district. The measure of poverty which is used, and which is the subject of the study mandated by Section 823, is the Federal government's official statistical definition of poverty (also known as the Orshansky, OMB, Census Bureau, or Social Security poverty lines).

Other work related to poverty measurement has been called for in recent legislative acts. In the Comprehensive Employment and Training Act, the Secretary of Labor is directed to develop and maintain comprehensive household budget data at different levels of living, including a "level of adequacy." Any such review of the level of adequacy must necessarily be closely related to measures of poverty. The Housing and Community Development Act of 1974 gives the Secretary of HUD authority to adjust the poverty measure to reflect local variations in the cost of living. The Conference Report accompanying it directs the Secretary to develop or obtain data with respect to the "extent of poverty" by metropolitan areas and to submit such data to the Congress as part of a March 31, 1977, report.

Because of the broad scope of the subject matter, coverage of the study of the measure of poverty mandated by Section 823 of the Education Amendments of 1974 was extended to include implications of the study findings for the poverty-related programs of all affected Federal departments and agencies. The Title I program of the Elementary and Secondary Education Act was given the most detailed treatment, to meet the legislatively-mandated specifications for the study as well as to serve as a primary example of application of the concepts of poverty measurement to Federal programs. The findings of the study are published in a report entitled, "The Measure of Poverty." An important objective of the study was full discussion and documentation of the major elements of currently applied and potentially usable poverty measures. Material containing essential supporting documentation for the study was assembled as technical papers. These have been written to stand alone as complete technical treatments of specific subjects.

The study was performed under the direct guidance of a Poverty Studies Task Force of the Subcommittee on the Education of the Disadvantaged and Minorities, Federal Inter-Agency Committee on Education. Technical papers were prepared at the request of, under the direction of, and subject to review by the Task Force members. Some papers are primarily the work of one or two persons; these are attributed to their authors. Others result from the collective input of Task Force members or advisors and no specific attribution is given except to the Task Force, as a whole.

The following listings show members of the Poverty Studies Task Force by appropriate Federal departments and agencies, and the titles and authors of the technical papers.

This report contains Technical Paper VII, In-Kind Income and The Measurement of Poverty. This paper was produced by Janice Peskin, Office of Income Security Policy, Office of the Assistant Secretary for Planning and Evaluation, Deptartment of Health, Education, and Welfare.

To obtain copies of the report, "The Measure of Poverty," or any of the technical papers, please write to:

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I.	Documentation of Background Information and Rationale for Current Poverty Matrix	Mollie Orshansky Social Security Administration
II.	Administrative and Legislative Usages of the Terms "Poverty," "Low Income," and Other Related Terms	Poverty Studies Task Force with assistance from Ellen Kraus
III.	A Review of the Definition and Measurement of Poverty	Urban Systems Research and Engineering, Inc.
IV.	Bureau of Labor Statistics Family Budgets Program	Mark Sherwood Bureau of Labor Statistics
V.	The Consumer Price Index	Jill King Mathematica, Inc.
VI.	Wealth and the Accounting Period in the Measurement of Means	Nelson McClung and Eugene Steuerle Department of the Treasury
VII.	In-Kind Income and the Measurement of Poverty	Janice Peskin Health, Education, and Welfare
VIII.	The 1972-73 Consumer Expenditure Survey	Jill King Mathematica, Inc.
IX.	Inventory of Federal Data Bases Related to the Measurement of Poverty (A) Non-Census Data Bases (B) Census Data Bases	Connie Citro, Mathematica, Inc. Bureau of the Census
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TECHNICAL PAPER VII
IN-KIND INCOME AND THE MEASUREMENT OF POVERTY

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This paper was completed in late 1975 and utilizes the data available at that time. The author is indebted to Jim Wyckoff for assistance in locating and generating most of the data in the fourth section. Thanks are due as well to John Coder, Bureau of the Census, for providing tabulations on food stamps from the Current Population Survey; to Timothy Smeeding, University of Utah, for making chapters from his as yet unpublished dissertation available for use in this paper; and to Edgar Olsen, Associate Professor of Economics at the University of Virginia, for providing some unpublished data. The paper benefited from critical comment by Henry Peskin, Howard Tuckman, Stan Stephenson and Daniel Radner.

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INTRODUCTION AND SUMMARY

Individuals in our society receive a multitude of in-kind benefits; that is, benefits that take a non-cash form. These benefits or subsidies may be provided by the government or the private sector. Examples of government in-kind subsidies range from in-kind transfers (such as food stamps or Medicare) to investments in human capital (such as in education) to subsidies within the tax system (such as interest and property tax deductions for homeowners). In the private sector, in-kind benefits such as health insurance or free housing may be provided by employers or benefits may accrue solely from individual family decisions as in the cases of owner-occupied housing or home-grown food.

In-kind benefits are now sizable in absolute terms. Moreover, they have grown sharply over the past decade in breadth and size. Outlays in the food stamp program have risen from less than $100 million in 1965 to $4.6 billion in fiscal year 1975. Medicare and Medicaid, which were not legislated until 1965, now cost over $25 billion a year and the employer-provided portion of private health insurance is estimated to total around $20 billion annually. Deductions of mortgage interest and property taxes on owner-occupied homes are estimated to cost around $10 billion a year in lost tax revenues.

To exclude in-kind benefits clearly biases aggregate income in a downward direction. Even more importantly, however, to ignore in-kind income distorts comparisons over a period of time and across households. The rise in in-kind transfers to low-income households during the past decade has been several times that of cash public assistance transfers. Fringe benefits have also been rising relative to wages and salaries. Moreover, the incidence of in-kind benefits is particularly uneven across households. Not only do the various types of government and private in-kind benefits apply to prescribed, and often different, populations, but the incidence of each type of in-kind income across the potentially eligible population is very uneven. Many examples of this uneven incidence can be cited, among them the 50 percent participation rate among eligibles in the food stamp program; the exclusion of many low-income households from eligibility for Medicaid and of most from public housing; and employer-provided health and life insurance which in 1970 covered two-thirds of non-office employees in nonunion establishments but 97 percent in union establishments.

Despite the obvious importance of in-kind benefits in our present-day economy, statistics on individual incomes collected by the Bureau of the Census in the decennial Census and in the March Current Population Survey -- and utilized in the measurement of poverty and of the distribution of income -- exclude all types of in-kind benefits. Census statistics utilize a regular before-tax cash income definition and, as a result, as noted above, aggregate income statistics are biased downward, improvement in economic well-being over a period of time is underestimated, and comparisons across households are distorted. Moreover, in-kind income is ignored in the measurement of poverty at present both because Census incomes are of necessity used in measuring the numbers of persons in poverty and because the poverty threshold itself ignores the satisfaction of basic needs through in-kind benefits. The poverty threshold builds upon the full cost of the USDA Economy Food Plan. Yet 40

percent of families and 20 percent of unrelated individuals with incomes below the poverty line are estimated to participate in the food stamp program and, as participants, receive the Economy Food Plan at zero or reduced cost. For these households, true incomes relative to the poverty threshold are underestimated, or alternatively, the poverty threshold is overestimated relative to cash incomes.

This paper summarizes what is known about the receipt of in-kind income. Its focus is the impact of certain in-kind benefits on individual persons and families, and its ultimate purpose the development of a framework for extending the Census income definition to include certain types of in-kind income. In this regard its scope is far narrower than a study of impacts of all Federal programs, for example.

Requirements for implementation of a cash plus in-kind income definition are detailed later. Any implementation of a cash plus in-kind income definition will first have to delineate the types of in-kind subsidies that will be included among the hundreds or perhaps thousands of subsidies that exist. While any such delineation will be, to some degree, arbitrary, several reasonable criteria can be used in order to make implementation manageable. First, a measure of in-kind income should be confined to the provision of specific goods and services, quantitatively large in the aggregate, to identifiable persons or families. Second, goods and services should be confined to substitutes for current cash income; thus consumption of goods, but not investments in human capital nor intangible benefits such as those from owned homes, would be included. Finally, an in-kind strategy might at least begin with the basic needs of food, housing, and health care, common to all persons.

Even if agreement can be reached that in-kind income should be confined, at least initially, to the areas of food, housing, and health, implementation will be more difficult for certain types of in-kind subsidies than for others. It is shown later, for example, that while Medicaid and Medicare benefits can be readily identified, employer-provided health insurance benefits will be difficult to ascertain. If the funds are not forthcoming to overcome these difficulties, the choice would then be to include Medicaid and Medicare, but not private health insurance benefits, or to exclude all in-kind health benefits from income. The first approach would provide a truer picture of income for families receiving Medicaid and Medicare, but would probably distort even more than at present the comparison of relative well-being of families. Housing benefits may pose the same problem: should public housing benefits be included if tax subsidies to homeowners are not? 1/ And finally, should food benefits be included if, for example, health and housing benefits are not?

Faced with this choice of precisely which benefits to include and which to exclude -- when to include the full range is not feasible though it is clearly the desired option -- a pragmatic decision rule might be adopted. Less than the full range of in-kind benefits might be included when to do so improves measures of well-being across families, but excluded should relative incomes be distorted even more than when no in-kind benefits are included.

This is, of course, an empirical question. Its resolution would probably point to the inclusion of food stamp bonus values, since food subsidies in the private sector are thought to be fairly small, but to the exclusion of Medicaid and Medicare benefits if employer-provided health insurance benefits cannot also be included as income.

The poverty threshold should, at the very least, be consistent with income definitions used in measuring poverty. Relative poverty measures, such as one-half of the median income, are in their nature consistent with income definitions. To the extent that in-kind benefits are excluded from income and impact differently across the income distribution, the relative poverty measure will, of course, provide a biased picture of poverty. When an absolute or semi-absolute poverty threshold is utilized, the need for considering in-kind subsidies is even stronger since basic needs are often met through such subsidies. The bias in current poverty measurement from not including food stamps has already been mentioned. The inclusion of in-kind benefits in income will, thus, require a study of poverty thresholds to ensure their consistency with income measures and their validity in the face of a cash plus in-kind income definition.

The remainder of this paper does not deal further with exactly which types of in-kind benefits should be included in income. In fact, the paper focuses on only four types -- food stamps, public housing, Medicaid, and Medicare -- since data on other types of in-kind benefits are sparse. For these four types, impacts across families and across states are sizeable. The primary findings of the various chapters of this paper are presented below.

The second section (How In-Kind Income Affects Individual Recipients) discusses how to value the increase in income from in-kind subsidies and shows how individual recipients may be affected differently by the receipt of in-kind income. Its findings are that:

-- In-kind income makes many persons and families better off, though they may not be better off to the full extent of the provider outlays on the in-kind good. This follows because a family may be induced to consume more of the in-kind -- or subsidized -- good than it would choose to consume if it were given cash. By not permitting the family to exercise complete freedom in its choice of a bundle of goods, that bundle with the in-kind component may be worth less to the family than if it had been given cash.

-- In order for in-kind income to be treated consistently with cash income -- which does allow families full choice over spending decisions -- the provider cost of in-kind subsidies must be reduced (or in rare cases perhaps increased) to its cash equivalent value to recipient families. A theoretical model exists for deriving such cash equivalent values. In essence it measures the cash income a family would accept in lieu of its in-kind income to leave it just as well off (a "willingness to pay" measure).

-- Valued in this manner, the cash equivalent of in-kind subsidies to a recipient will generally fall between zero and 100 percent of provider outlays. It will not be negative as long as potential recipients are not forced to participate. Moreover, observation that recipients purchase more of the subsidized good on the market than is provided through the in-kind subsidy is a sufficient condition for valuation equal to provider cost.

-- Empirical findings from several studies show the cash equivalent value of various in-kind subsidies to be significantly below government cost. Food stamps were found on average to be valued, in terms of recipient benefits, at about 85 percent of government cost while public housing was valued at about 60 percent of cost. Medicaid was valued at 65-70 percent and Medicare at over 90 percent of government cost.

-- These average cash equivalent values will vary sharply across families by income level, family size, and other demographic characteristics. Generally, the cash equivalent value of an in-kind subsidy will rise with income level and family size. Food stamps, for example, were valued at some 73 percent of government cost for families with incomes below $1000 a year, but at 100 percent of government cost for families with incomes close to the income eligibility limits in the food stamp program. Because in-kind transfers are often largest to the lowest-income families, valuation at government cost would impart a sizeable upward bias to incomes.

-- Implementation of a cash plus in-kind income definition requires two steps. First, data on the receipt of, and subsidy from, in-kind income must be collected on household surveys. Sometimes this is easy -- as in food stamps or Medicare -- but in other cases it will be more difficult -- as with housing subsidies and particularly private health insurance. Second, the subsidy must be valued in cash equivalent terms.

-- It is proposed that estimation techniques for valuing in-kind subsidies in cash equivalent terms be developed and evaluated. After such a technique is available, food stamps could be included in income with little difficulty. Inclusion of other types of in-kind income is desirable, but must await means of surmounting practical difficulties of data collection.

The third section (Impacts of Certain In-Kind Programs on Income and Poverty) describes four in-kind programs -- food stamps, public housing, Medicare, and Medicaid -- and presents a multitude of data on their impact on income distributions and poverty counts. These effects depend on both the size of the in-kind programs -- as to numbers of recipients and average transfers -- and on the distribution of the transfers among families at various income levels. The third section finds that:

-- Food stamps were purchased by 19.5 million persons in May 1975 and transfers totaled $424 million. Maximum income eligibility standards in the food stamp program are, except for one-person households, above the current poverty threshold. Eligibility depends, moreover, on monthly rather than annual incomes. In addition, not all persons eligible for food stamps participate in the program. In 1974 about 53 percent of families and 75 percent of unrelated individuals receiving food stamps were below the poverty line. And only 40 percent of poor families and 20 percent of poor unrelated individuals were recipients of food stamps.

-- The receipt of food stamp bonuses (valued at government cost) increased average incomes of food stamp households by $605, or 10 percent, in 1974. Among food stamp families and unrelated individuals with cash incomes below the poverty line, over 1 1/2 million persons were removed from poverty after the receipt of food stamps, for a 16 percent reduction in the number of food stamp families below the poverty line. The overall poverty count was reduced about 8 percent after food stamp bonuses.

-- Low-rent public housing affects few families nationwide and many tenant families may have incomes above the poverty threshold. Of all families in the U.S. with annual incomes below $3000, only 5 percent were served by the public housing program by the end of 1972. While public housing may provide sizable benefits to tenant families, its low incidence leads to the conclusion that, by itself, the program does little to alter income distributions or poverty counts.

— Medicaid covers some 25 million persons at a cost of over $12 billion annually. Recipients are persons and families receiving public assistance and other families or persons deemed to be medically needy. No data are available on recipients by income class, but most have low incomes and many have incomes below the poverty threshold.

— Medicare provides health insurance to some 23 million persons, mostly aged, at an annual cost of around $14 billion. How many Medicare enrollees have low incomes or are poor is not known.

-- Families that receive one in-kind transfer have varying probabilities of receiving other in-kind transfers. The more types of in-kind income a family receives, the greater is the likelihood that the inclusion of in-kind benefits in income will raise that family out of poverty. There are no reliable national data on the extent of overlapping benefits. However, considerable overlaps appear likely, particularly for families receiving public assistance, since they are categorically eligible for Medicaid and for food stamps.

-- When these four transfers were considered jointly and added into 1972 incomes at their estimated cash equivalent values, estimated impacts on incomes and poverty were sizable. Some 12.4 percent of families had personal incomes below $3000 before in-kind transfers,

but only 10.1 percent had such incomes after receipt of these transfers. The Gini coefficient was reduced from .3614 to .3522. The number of poor households was reduced by 2.8 million, or 28 percent, the poverty gap declined by $3.5 billion and the mean poverty gap by $35.

The fourth section (Impacts of Certain In-Kind Programs Across States) presents selected data and evidence on the differential impact of the four in-kind transfers across states. No data base exists at present that will allow the effect of in-kind transfers on low-income households and on poverty counts across states to be measured with any accuracy. Such an analysis will have to await the completion of the Title 1 State by State Survey (the so-called Survey of Income and Education or 822a Survey). The evidence marshalled in this section, albeit limited, does point to sharply differing impacts of in-kind transfers across states, as highlighted below.

-- In-kind transfers impact differentially on states because (1) eligibility criteria and benefits of in-kind transfer programs differ across states; (2) participation among eligible families differs across states; and (3) demographic and economic characteristics of families differ across states as do costs and availability of goods and services such as health care.

— Total recipients of, and transfers from, food stamps increase with increases in the population size of states. However, lower-income states receive larger proportions of transfers than state population levels alone would imply. States in the Northeast accounted for 28 percent of food stamp participants, but 23 percent of transfers; Southeastern states had 23 percent of participants, but 26 percent of transfers. Monthly bonus values per food stamp recipient were higher in lower-income states, averaging $20 in the Northeast and $24 in the Southeast. New York's bonus per recipient averaged only $13.

-- Rough estimates of the percentage reduction in poverty as a result of food stamp transfers showed wide differences across states. Estimated poverty reduction varied from a high of 64 percent in Washington, D.C., and 32 percent in New Jersey -- the second largest reduction -- to less than one percent in Kansas, New Hampshire, and North Dakota. Among states experiencing relatively low poverty reduction from food stamps, the Mountain West and Midwest states predominated.

-- The proportion of families with incomes below $3000 occupying low-rent public housing in 1974 varied from one percent in Wyoming to a high of around 18 percent in the District of Columbia. Rhode Island and Arkansas followed Washington, D.C., as the states with the highest proportions of persons with incomes below $3000 in low-rent public housing.

— Medicaid varies widely across states by almost any measure one can construct. Recipients to population ratios in 1973 varied from .19 in Washington, D.C., to .02 in Alaska; states with above average

ratios generally had medically needy programs. Outlays varied from $2.3 billion in New York to $3 million in Alaska; New York alone accounted for 26 percent of all Medicaid outlays, and New York, California, and Illinois together for 44 percent of Medicaid outlays. Outlays per recipient varied sharply, from $811 in New York to $185 in West Virginia, and vendor payments per AFDC family varied from $1403 in New York to $168 in Mississippi.

-- Enrollees in Medicare in 1972 varied from 15 percent of Florida's population to 2 percent of Alaska's. New York and California accounted for 24 percent of total Medicare reimbursements. Net outlays per enrollee varied from $473 in Massachusetts to $179 in South Carolina, reflecting differences in the proportion of enrollees receiving reimbursements and medical care costs.

HOW IN-KIND INCOME AFFECTS INDIVIDUAL RECIPIENTS

Households, families, and individuals in our society receive many different types of in-kind income from a variety of sources, private and governmental, as was discussed in the preceding section. In most cases, the recipient unit is made better off by the receipt of such income. Methods for measuring how much better off is the subject of this section. The section first presents a general statement of the problem for all readers. For the reader interested in technical detail, the generally accepted model for valuing in-kind income is described and its implications summarized. The general model is then applied to four specific in-kind benefits -- food stamps, Medicare, Medicaid, and public housing -- and empirical results on cash equivalent values from several studies are presented. Finally, the difficulties of implementing a cash plus in-kind income definition are discussed.

GENERAL STATEMENT OF THE PROBLEM

An expanded income definition that includes in-kind as well as cash income should be consistent in its treatment of these two income types. That is, a dollar of cash income and a dollar of in-kind income should be fully interchangeable (or perfect substitutes) in the eyes of recipients. Otherwise, comparisons of income over a period of time and across households would be distorted. The task, then, is to convert in-kind income into its cash income equivalent. Or, what cash income would a recipient accept in lieu of his in-kind income that would leave him just as well off (the "willingness to pay" measure)?

This paper views in-kind income solely from the perspective of the direct recipient of in-kind income. It is only for these direct recipients that it is proposed to adjust cash income to include in-kind benefits. It is also true, of course, that other individuals may indirectly benefit from the provision of the in-kind income. For example, farmers may benefit from food stamps, builders from public housing, and employers, taxpayers, and/or society at large from a whole range of in-kind benefits. Thus, it follows that in-kind subsidies may be justified on efficiency grounds even when direct recipient valuation of the subsidies falls below provider cost. 2/ But, even if society's valuation of the in-kind subsidy is equal to or even above government or provider cost, it is crucial to recognize that some portion of the total value may accrue not to direct recipients of the in-kind subsidy but to other members of society.

Statistical series on aggregate amounts of in-kind income utilize provider cost as the valuation standard. For example, among government in-kind transfers it is the cost to the government (i.e., program outlays exclusive of administrative costs) that is equated with recipient transfers or "benefits." However, income to the direct recipient may not necessarily equal outlays by the government. Only if each recipient were to value a dollar received in in-kind transfers as equivalent to a dollar of cash would the provider cost be valid as a measure of

recipient noncash income derivable from the transfer. It is unlikely that this equality holds for all recipients.

It is usually assumed that a household receiving income in the form of cash will spend that income on a bundle of goods (including savings) in the manner that is most desirable from its own perspective. In technical terms, it is assumed to maximize utility given a budget or income constraint. In-kind income, however, is provided in the form of a particular good or set of goods. After receipt of the in-kind income, then, the household's bundle of goods may include more (or in some cases less) of the particular good than it would choose if given cash. Because the household is not permitted to exercise complete freedom in its choice of a bundle of goods, that bundle with the in-kind component may be worth less to the household than if it had been given cash. 3/ For example, a family that is temporarily housed for a month in a hotel costing the government $50 a day can in no case be said to have $1500 of income for the month; clearly, if provided with $1500 in cash, the family would not have chosen to spend all of the $1500 on housing.

Receipt of the different types of in-kind income may influence the recipient's choice of a bundle of goods by (1) altering the relative prices faced by the recipient, and/or (2) constraining consumption amounts directly. Programs like food stamps and public housing set amounts of food and housing, respectively, that must be consumed if program benefits are to be enjoyed. Partially or fully subsidized health benefits, on the other hand, normally leave amounts of health care consumed up to individual recipients.

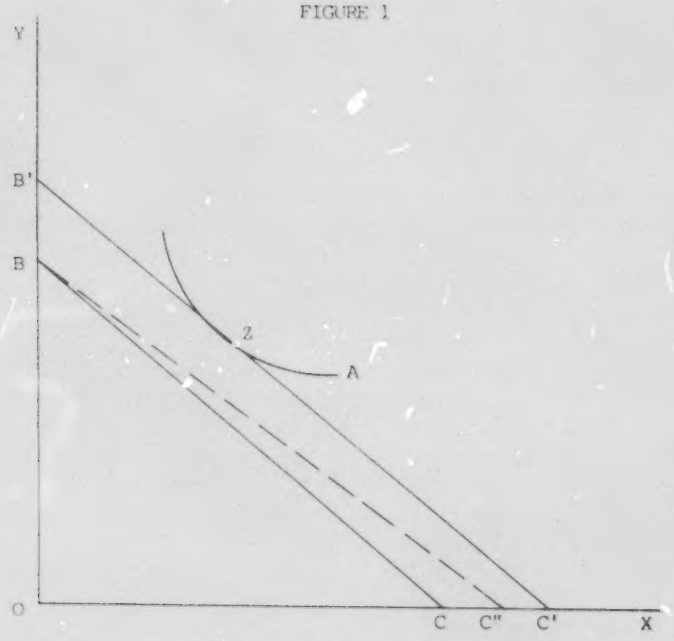
The problem addressed in the remainder of this section is the development of a theoretically acceptable, yet empirically implementable, methodology for converting in-kind income into its equivalent cash income from the perspective of the direct recipient. The conversion will depend on the preferences of individual recipients and on the precise parameters of the in-kind subsidy.

THE GENERAL THEORETICAL MODEL

The generally accepted economic model of consumer choice provides a theoretical framework for converting in-kind income into its cash income equivalent. Since later analysis relies upon an understanding of this model, its basic framework and underlying assumptions will be briefly explained for the non-technical reader. 4/ Others may wish to move on to the next section of the paper (Implications of the Model for Measurement and Valuation of In-Kind Income).

The two primary concepts upon which the model of consumer choice relies are the indifference curve and the budget line. These are shown in Figure 1. An indifference curve represents all combinations of goods which permit an individual to attain equal satisfaction or utility (curve A in Figure 1). Figure 1 shows only one of these curves; there is actually a family of such curves -- one for each level of utility. Thus, the curve portrays individual preferences. Moving along an indifference curve to the right shows the amount of good Y that the individual would be willing to give up in order

FIGURE 1



to acquire more of good X and be just as well off as before, that is, with unchanged total utility. The assumptions usually made about indifference curves are that: (1) higher indifference curves (i.e., further from the origin) are to be preferred to lower curves, that is, more of both goods increases satisfaction or utility; (2) curves are convex to the origin, that is, the more of a good (e.g., X) an individual has, the less is the utility derived from an additional unit (and, hence, more X is demanded to offset incremental losses in Y); and (3) curves cannot intersect one another.

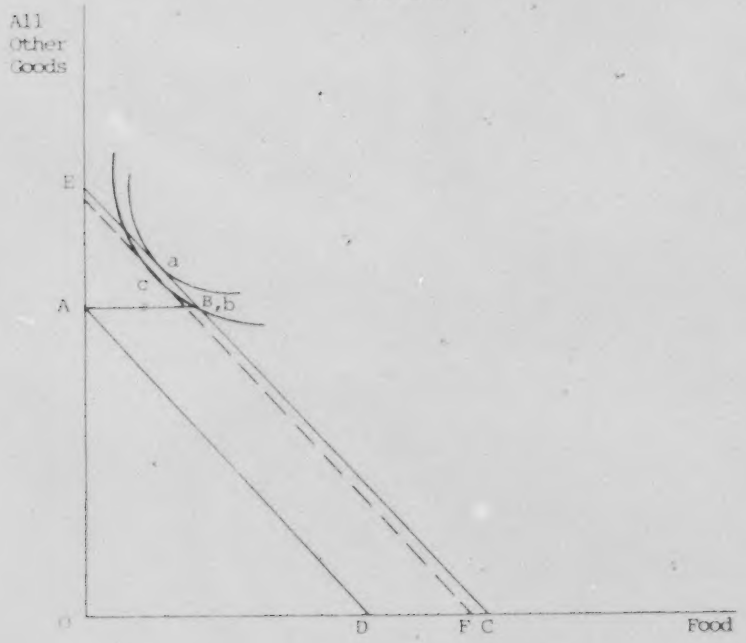
The budget line (BC in Figure 1) shows the combinations of goods an individual could purchase given his income. He might purchase OB units of good Y with no good X, OC units of X with no good Y or some combination of both goods that lies along the budget line. Assuming positive and constant prices, the budget line will be a straight line with a negative slope (-Px/Py). A change in income is shown by a parallel shift of the budget line (e.g., B' C' in Figure 1 represents a higher income level allowing more of both goods to be purchased) while a change in relative prices will shift the line in a manner that alters its slope (e.g., BC" in Figure 1 represents a lower price of good X).

Following from the assumptions noted above, an individual will reach the highest level of satisfaction he is able to attain at the point of tangency between his budget line and indifference curve, that is, at point Z in Figure 1. At such a point of tangency the individual will be maximizing utility subject to his budget constraint.

This framework may be used to depict cash equivalents of in-kind income where the in-kind income is viewed as altering relative prices faced by the recipient or constraining consumption amounts or doing both simultaneously. For expository purposes, imagine two food subsidy programs, one in which a (nutritionally adequate) diet is provided at no charge, i.e., at a zero price, and one which provides $.50 of every $1.00 spent on food. Under the first program, suppose that a nutritional diet, equal to AB or DC in Figure 2, is given to an individual whose new (post-program) budget constraint is shown by the bent line ABC. If the individual had received an amount of money equivalent in cost to the food, the new budget line would have been EBC. Because the two new budget lines share a common segment, BC, it is possible that either option -- providing food or cash -- will yield the same result in terms of welfare gain and the composition of consumption. This would follow if the point of tangency with the highest indifference curve fell between B and C. However, if the individual's indifference curves are as shown in Figure 2, a higher level of utility can be reached with the cash option (point a in Figure 2) than with the food program (point b).

Stated alternatively, the individual could reach the same level of utility (point c) as achieved with the food subsidy with a lower cost cash option (DF < DC). Thus, under the usual assumptions regarding

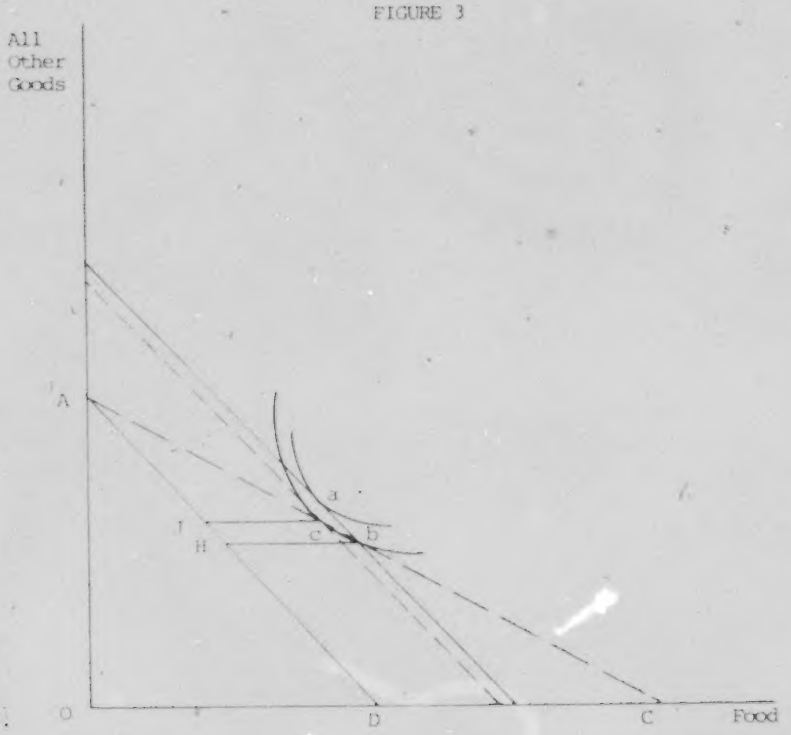
FIGURE 2



individual preferences and market behavior, in-kind subsidies that set consumption amounts will be exactly equivalent to cash or less effective than cash in providing a given level of utility at a given cost, depending upon the consumption imposed by the program and individual preferences.

The second type of subsidy, which provides the individual with $.50 of every $1.00 spent on food, lowers the price of food relative to other goods faced by the recipient and thus shifts the budget line outward (from AD to AC in Figure 3). Given the price subsidy, the individual will maximize utility at point b. This will cost the government bH times the price of food. That same level of utility, however, can be achieved with a cash payment of smaller size (cJ) or a higher level of utility may be achieved with a cash payment of equal size (point a). With equivalent cash, the individual would always choose less food and more of other goods than when food prices are subsidized. Again, under the usual assumptions concerning preferences (particularly the assumption of convexity of indifference curves), higher individual utility will always be achieved for equivalent cost with cash than with in-kind subsidies that alter relative prices.

FIGURE 3



IMPLICATIONS OF THE MODEL FOR MEASUREMENT AND VALUATION OF IN-KIND INCOME

The model of consumer choice or utility maximization delineated above provides qualitative conclusions about the circumstances under which in-kind income may be valued by the recipient at provider or government cost and when it will be valued at less than provider or government cost. Moreover, it points to the variables affecting the in-kind to cash conversion and, thus, to the general types of information that are necessary if an income definition including in-kind income is to be fully and satisfactorily implemented. These implications are discussed in turn.

In theory, the value of in-kind income to the recipient may be greater than, equal to, or less than provider or government cost. Conceivably, the value might even be negative — that is, in-kind income might actually make the recipient worse off, although this result may be dismissed for all types of in-kind income which the potential recipient has the freedom to decline. Conditions under which recipient valuation might be greater than provider or government cost occur when (a) existing market imperfections such as racial discrimination or discrimination against the poor in general are reduced or eliminated because of the in-kind subsidy (Medicaid valuation might be influenced by this effect to the extent it has improved access to health care), and/or (b) government expenditures are less than private market costs in cases where the government produces the good or provides the service directly, i.e., in cases where the government is more efficient than the private sector. 5/

The conditions sufficient for valuation of in-kind income equal to provider cost, i.e., equivalent to a cash transfer, occur when: (a) market equals provider cost and the good might be resold by the recipient at market prices and without transaction costs; (b) consumption constraints are set such that the recipient consumes exactly that amount of the subsidized good he would have consumed if given cash rather than the in-kind income (this condition is satisfied when the recipient can and does supplement amounts of the subsidized good with additional market purchases); and (c) indifference curves are rectangular rather than subject to the usual assumptions specified earlier and there are no consumption constraints imposed. 6/ In practice it is only the second condition mentioned above that will be important for some types of in-kind income. 7/

When these conditions for valuation greater than or equal to provider cost are not met, the value of the in-kind income to the recipient will fall between zero and provider cost. It is likely that most, if not all, types of food, housing, and health subsidies will fall into this category. That is, it is not expected that any type of in-kind income will satisfy the above condition(s) <u>for all recipients</u>.

While the theories outlined above point to qualitative conclusions about the conditions underlying valuation of in-kind income equal to, above, or below provider cost, quantitative conclusions must rely on empirical studies.

Such studies will, in turn, have to account for the many factors or variables affecting recipient valuation of in-kind income. Drawing upon the theoretical model outlined above, these variables are:

Individual preferences. The value of any type of in-kind income will vary across recipients, depending upon individual recipient preferences (or indifference curves) for specific goods. That is to say, for example, that health benefits will be worth more to individuals who value health expenditures relatively highly than to those who don't, ceteris paribus.

Individual incomes (pre-subsidy) or budget constraints.

Precise parameters of the bundle of in-kind incomes received by any recipient. Several points are important. First, that the characteristics of the in-kind subsidy should be specified as to how they impose constraints on consumption, if any, and how they may alter relative prices. Second, the parameters of the subsidy may vary across recipients; in-kind subsidies often depend upon factors such as household size or household income level. Third, the value of any one in-kind subsidy will be affected by receipt of other in-kind subsidies since relative prices and incomes will be altered; thus, for any one recipient, the entire bundle of in-kind subsidies should be valued simultaneously.

It is, of course, the interaction among these variables that is crucial in determining the value of in-kind income to recipients, individually and thus in the aggregate. Above all, however, it is important fully and carefully to delineate the characteristics of each type of in-kind income.

APPLICATION TO SPECIFIC TYPES OF IN-KIND INCOME

This paper focuses on four types of in-kind income, all governmentally provided: food stamps, Medicare, Medicaid, and public housing. It should not be inferred from this narrow focus that an income definition including in-kind income could confine itself to these four types of in-kind subsidies. On the contrary, to do so would distort data on the distribution of income and poverty since some households would be treated differently than others. This distortion would be particularly severe with respect to subsidies involving health benefits or insurance and subsidies to housing which are widespread throughout our economic system, involving the private as well as the public sector, occurring at the local as well as the Federal level, and effected through the tax system as well as through public expenditures.

Confining the analysis to these four programs is, rather, a matter of convenience. Data on the size and distribution of these four types of in-kind income are more readily available than for most other types. Several studies on impacts of these governmental programs on incomes and poverty are available. And finally, these four programs illustrate a range

of different ways of influencing consumption and, thus, well-being of recipients, as well as represent various implementation problems.

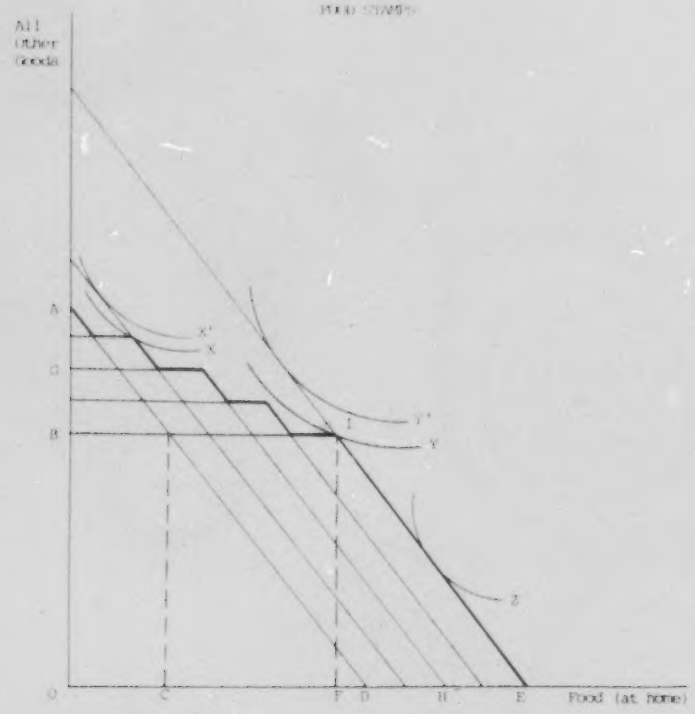
Food Stamps

Food stamps is an income-tested program designed to improve the nutrition levels of low-income households. Any household meeting the basic eligibility requirements — an income test, an asset test, and a work requirement -- may purchase food coupons at a price below the value of the coupons, thus deriving a transfer — the so-called bonus value — from the program. The amount of the food coupons -- the so-called food stamp allotment — that may be purchased rises with the number of household members. The present monthly allotment ranges from $48 for a one-person household to $162 for a four-person household to $278 for an eight-person household, with $22 of additional food stamps for each additional person beyond eight. The variable purchase option allows that one-fourth, one-half, or three-fourths of the full allotment may be purchased in any month. The price households must pay for the food stamps rises with net monthly income. It is essentially zero for households with net incomes below $30 a month and rises to a maximum of 30 percent of net income.

A graphic representation of the food stamp program appears in Figure 4. The recipient's pre-program budget constraint is AD. For this hypothetical recipient it is assumed that the food stamp full allotment equals OF, the purchase price AB, and the bonus value (or subsidy) CF. A fully implemented variable purchase option will also permit the recipient to purchase specific proportions of the full allotment with a proportionate reduction in the purchase price. In Figure 4, for example, the one-half option is shown by the kinked line GH. The recipient is also free to purchase more food than the amounts represented by the various allotments at market prices. The post-program budget constraint facing the recipient is, thus, the heavy kinked line AIE.

Were our hypothetical recipient to have preferences for food and all other goods represented by the indifference curve Z, he would supplement the food stamp full allotment with purchases of food at market prices. For such a recipient, the food stamp bonus value is equivalent to a cash transfer and the full bonus value may legitimately be added to his income. The sufficient condition for such an outcome is that the recipient purchase more food for home consumption than his food stamp allotment. Such a value is amenable to direct measurement on an individual household basis.

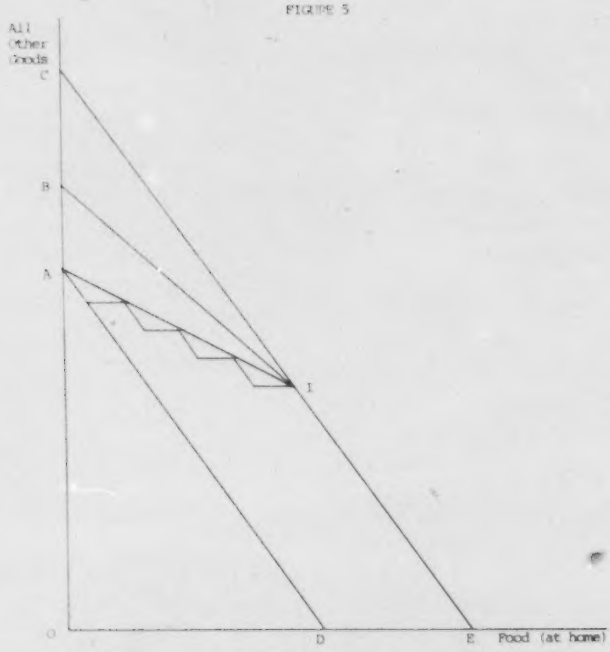
With preference functions shown by indifference curves X (where the recipient will purchase one-fourth of the full allotment) or Y (where he will purchase the full allotment), the food stamp bonus value is worth less than an equivalent cash transfer which would allow the recipient to reach higher indifference curves (and thus levels of satisfaction), shown by curves X' and Y', respectively. 8/ Were the recipient given cash, he would spend less on food and more on other goods than he is allowed within the confines of the food stamp program.



The program depicted above is probably a realistic portrayal for many food stamp recipients. For others, however, budget constraints imposed by the program may be somewhat different. First, food stamps need not be utilized in the month in which they are purchased. By altering the proportion of the full allotment purchased from month to month and "storing" excess food stamps for use in other months, households might secure on average over a number of months virtually any amount of food stamps desired up to the full allotment. In this case the budget constraint can be viewed as the continuous line AI in Figure 5. Qualitative results are unchanged from those noted earlier. "Storage" also permits a household on food stamps for only a few months, which is aware of its short-term eligibility for stamps, to maintain its food consumption at pre-subsidy levels despite temporarily higher food expenditures; for such a household, the stamps are equivalent to cash.

Second, while it is not legal to transfer food stamps, to the extent such transfers exist, outcomes may be altered. A transfer or resale at full price would, of course, transform the food stamps into cash (assuming zero transaction costs). A resale at less than full price as might occur in a formal black market would lend direct evidence to a recipient valuation of less than government cost. Such resales at a reduced price would transform the budget constraint to a line such as BI in Figure 5 that would be bounded by lines AI and CI. Again, qualitative results would be unchanged in that households

FIGURE 5



maximizing utility along either the kinked segment AI of Figure 4 or the continuous segment AI of Figure 5 will in virtually all cases value the stamps at something less than government cost.

Where households fall in the calculation of cash equivalents will depend in part on their incomes. As incomes rise, discretionary food expenditures can also be expected to rise and the likelihood that the bonus value will be equivalent to cash is greater since there is a higher probability that the recipient can be expected to purchase more food than the food stamp allotment. For households with the lowest incomes, bonus values can be very large and at the same time might be expected to be worth considerably less than cash; for such households the direct inclusion of bonus values into income would be particularly biased insofar as such households are concerned.

Whether food stamps are equivalent to cash for individual households is an empirical question. Several recent studies have focused on estimating cash equivalents (or approximations to cash equivalents) of food stamp bonus values. In broad outline their results appear to be consistent: recipient valuation of bonus values is below government cost (that is, the ratio of the cash equivalent of the food stamp subsidy to the bonus value or government cost is less than one) for lower income households, rises as incomes rise, and equals government cost as incomes approach breakeven levels (that is, the income levels at which households are no longer eligible for food stamp benefits). The individual studies' findings are as follows.

The Clarkson study [3] computed cash equivalents for household sizes 1 through 9 and for various monthly income levels. On average, across

Table 1. Recipient Valuation of Food Stamp Bonus Values, June 1972: Clarkson Study

Selected Monthly Incomes	One Person (1) Bonus Value	One Person (2) Cash Equivalent	One Person (1)-(2)	One Person (2)/(1)	Four Persons (1) Bonus Value	Four Persons (2) Cash Equivalent	Four Persons (1)-(2)	Four Persons (2)/(1)	Eight Persons (1) Bonus Value	Eight Persons (2) Cash Equivalent	Eight Persons (1)-(2)	Eight Persons (2)/(1)
$ Under 29	$31	$20	$11	64%	$108	$39	$69	36%	$180	$49	$131	27%
$ 50 - 69	23	22	1	98	96	58	38	61	166	76	90	46
$100 - 149	10	10	0	100	77	61	16	79	144	87	57	60
$250 - 359	-	-	-	-	30	30	0	100	93	81	12	87
$480 - 539	-	-	-	-	-	-	-	-	55	55	0	100

Source: Clarkson [3], selections and derivations from Table 7, pp. 38-39.

the recipient population, cash equivalent values were 82 percent of bonus values. Clarkson found the cash equivalent to bonus value ratio to rise with income and decline with household size, ceteris paribus, as shown in Table 1. For example, it is estimated that one-person households with monthly incomes of around $60 will value their food stamp subsidies at 98 percent of bonus value while eight-person households with similar incomes will value the stamps at only 46 percent of bonus value. For four-person households with monthly incomes of less than $29 the estimated ratio of recipient value to bonus value is 36 percent while it rises to 79 percent for such households with incomes of around $125.

These estimates imply that the cash equivalent to bonus value ratio reaches one at income levels roughly 50 percent below the food stamp breakeven level of income for one- and two-person households and 25 percent below for larger size households. If one could assume that households receiving food stamps were evenly distributed across incomes below the breakeven level, then the Clarkson estimates would imply that bonus values are not accurate representations of income derived by recipients for 50 percent of one- and two-person households and 75 percent of larger size households. Moreover, the absolute dollar difference between bonus value and its cash equivalent can be very large for low-income households, particularly if they include many members, since bonus values rise as income falls and as household size increases. Referring again to Table 1, it can be seen that for four-person households with cash income around $60 a month the overstatement of income -- if one simply added bonus values to income -- would be $38 a month or $456 a year were food stamps to be received continuously over a year's time. Such an overstatement would amount to one-third of "true" income (cash income plus the cash equivalent of food stamp bonus values).

The Clarkson study utilizes a Cobb-Douglas utility function and an estimate of .33 as the proportion of income spent on food. This proportion is held constant across all households, regardless of income or household size. The proportion of income spent on food is a crucial determinant of cash equivalents. Because the proportion of income spent on food falls as income rises and rises with household size (given income), the use of a fixed proportion, as in the Clarkson study, will bias the findings towards relatively lower cash equivalents for lower incomes and larger household sizes. That is, were the study to have used variable proportions spent on food in closer approximation to true consumption patterns, the fall in the ratio of cash equivalents to bonus values as income falls and household size increases would not have been as large as estimated in the study.

A second study, Smeeding [16], also found ratios of cash equivalents to bonus values to rise with income level, as can be seen in column 4 of Table 2. While his overall ratio is 89 percent, somewhat higher than Clarkson's, it rises from 73 percent at annual incomes below $1000 to 100 percent at annual income levels of around $7000. These estimates allow for proportions of income spent on food to vary by income level and household size. They are, however, only gross approximations to cash equivalents in that utility functions were not utilized in deriving the estimates; resulting impacts on cash equivalents are discussed in the later section on Implementation.

Table 2. Recipient Valuation of Food Stamp Bonus Values, 1972: Smeeding Study

Disposable Personal Income	(1) Average Annual Bonus Value	(2) Average Annual Cash Equivalent	(3) (1) - (2)	(4) (2)/(1)
$ 0 - 999	$659	$481	$178	73%
$1000 - 1999	343	295	48	86
$2000 - 2999	297	261	36	88
$3000 - 3999	355	316	39	89
$4000 - 4999	344	310	34	90
$5000 - 5999	334	309	25	93
$6000 - 7499	344	325	19	95
$7500 - 9999	325	323	2	100
$10,000 +	375	375	0	100

Source: Smeeding [16], selections and derivations from Table A-7, p. 357.

Smolensky et al. [17] calculated ratios of cash equivalents to bonus values for five hypothetical households varying in size and income. A displaced CES utility function was utilized in the simulation, and necessary parameter values of the utility function were assumed. Marginal budget shares, differing by size and income, were calculated from the 1960-61 Survey of Consumer Expenditures. Cash equivalent ratios for these five hypothetical families are shown in Table 3 below. Unfortunately, the income levels chosen for the simulation were so high that food stamp households with such incomes were often not eligible for program benefits in 1970. In the states in which households with such incomes were eligible, households were very close to the breakeven level of income. Thus the Smolensky results corroborate the Clarkson and Smeeding studies in finding that ratios are equal to one for households close to breakeven income levels, but cannot be extended beyond these narrow confines.

Table 3. Ratio of Cash Equivalent to Bonus Value, 1970: Smolensky Study

Two-Person Family			Four-Person Family		
Income	$2869	100%	Income	$3414	100%
Of	$4883	na	Of	$4706	100%
				$6572	na

Source: Smolensky et al. [17], selections from Table 4, p. 32.

Findings of several other less sophisticated studies are qualitatively similar. Mittlehammer and West [10] found bonus values to be equivalent to cash only at incomes close to breakeven levels. Galatin [6] found that food stamp bonus values in 1970 were equivalent to cash for 76 percent of single persons receiving Old Age Assistance, 23 percent of couples receiving Old Age Assistance, 31 percent of two-person AFDC units and for none of the four-person AFDC units. 9/

These studies uniformly point to a recipient valuation in terms of cash equivalents that is below bonus values (or government cost) for a significant number of households. It can be concluded, therefore, that bonus values cannot be added in to income directly without serious bias for some households, particularly those with lower incomes. The numbers of food stamp recipients so affected and the precise amounts by which cash equivalents fall below bonus values, however, must be examined in future studies.

Future work must go beyond the above studies for a number of reasons. Several specific criticisms of the individual studies were mentioned above. In addition, however, these studies utilize data on household expenditures that are now 15 years out of date. The 1972-73 Survey of Consumer Expenditures may show significantly different proportions of income spent on food. 10/

Second, empirical estimates must allow for variation in these proportions not only across income class and housenoid size, but across other geographic or household characteristics (e.g., age) if such factors represent significant and measurable differences in individual preferences.

Finally, distinctions between food stamp benefit schedules, based on income after many deductions, and gross income must be understood; if, for example, all food stamp households had $50 a month in deductions from income so that gross incomes were $50 higher than net incomes, cash equivalents of the bonus values would be different depending upon whether net or gross income levels were utilized in the estimates.

Public Housing

Low-rent public housing provides benefits to recipients (tenants) in the form of reduced rents. 11/ These low rents are enabled by Federal loans and grants to local housing authorities which provide a specified amount of housing services to tenants. Rents are set by the local housing authorities and reflect income and household size among other factors. Gross rents cannot be greater than 25 percent of income.

In effect, then, the potential tenant is offered a fixed amount of housing services -- OC in Figure 6 -- at a specified rent -- AD in Figure 6. His new budget constraint consists of his pre-program budget constraint, AB, or the new point, E, where he will consume OC units of housing and OD units of all other goods. The indivisible nature of the transfer has two important implications. First, the participation decision is considerably more circumscribed than with an open-ended voucher program like food stamps. Secondly, the recipient may be forced to underconsume, and thereby be less well off than with an equivalent cost cash payment; under open-ended vouchers such as food stamps or rent supplements, forced underconsumption will not occur.

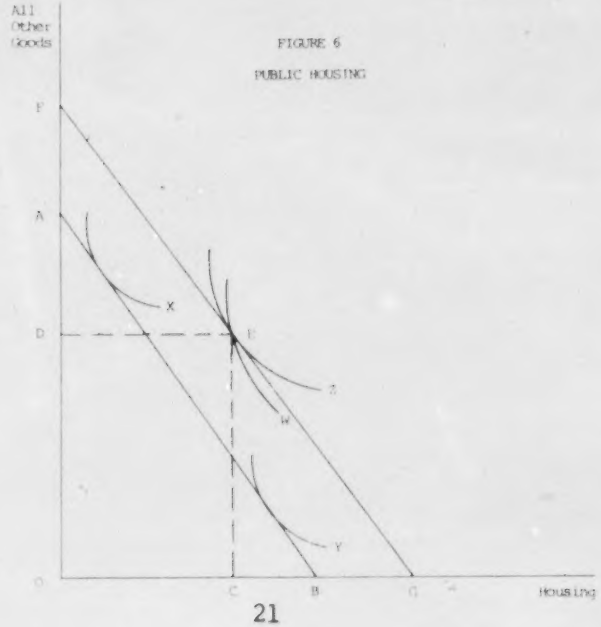


FIGURE 6

PUBLIC HOUSING

These potential situations are illustrated in Figure 6. If the public housing offer falls below the old budget constraint, or if the recipient has preferences identified by indifference curves X or Y, the offer of public housing (point E) will be refused. For others, for example one with indifference curve W, the offer will be accepted; for this individual, however, it is worth less than an equivalent cash transfer which would have permitted him to consume more housing services at a higher rent. Only for individuals with preferences represented by indifference curve Z will the public housing make them as well off as would an equivalent cash transfer.

Public housing transfers present another valuation issue that does not arise with voucher programs that operate through existing markets: that of true resource costs differing from governmental outlays as a result of inefficiency. Under public housing programs, housing services are provided directly by governmental bodies. If such bodies are less efficient providers of housing services than the private market sector, governmental cost will be greater than market value or resource cost in providing the identical services. Should governmental cost be used to measure transfers to recipients, then, benefits would be biased upward by the excess of such costs over true resource costs.

Recently available estimates of recipient benefits from housing transfers show average cash equivalents to be significantly lower than in the food stamp program. Murray [11] calculated cash equivalents of public housing benefits utilizing estimated parameters of both the Cobb-Douglas and the generalized CES utility functions. His estimates, using the CES specification, show an average cash equivalent to government cost ratio of .66 and an average cash equivalent to market value ratio of .84. The ratios vary across household sizes and compositions, as can be seen in Table 4.

Table 4. Recipient Valuation of Public Housing Subsidies, 1968: Murray Study

Family Composition Size-No. Minors	(1) Monthly Subsidy 1/	(2) Market Value of Subsidy	(3) CES Utility Function Monthly Cash Equivalent	(4) (3)/(1)	(5) (3)/(2)	(6) Cobb-Douglas Utility Function Monthly Cash Equivalent	(7) (6)/(1)	(8) (6)/(2)
1-0	$ 85	$ 67	$ 63	73%	93%	$ 55	64%	82%
2-0	113	89	71	63	80	71	63	80
2-1	110	85	65	59	76	63	57	73
3-1	144	114	87	61	76	96	67	84
3-2	128	101	90	70	89	84	66	84
4-2	152	120	102	67	84	92	60	76
4-3	153	122	86	56	71	100	66	82
5-4	175	140	117	67	83	120	69	85
6-5	182	146	125	69	86	116	64	80
Average	119	94	79	66	84	76	64	81

Source: Murray [11], selections and derivations from Table V, p. 783.

1/ Murray assumed that government costs are 17 percent greater than market values. This assumption was based upon HUD estimates.

The Department of Housing and Urban Development estimates a somewhat lower ratio of .55 between governmental (Federal and local) outlays and recipient benefits in public housing. That is, only $55 of every $1.00 spent can be viewed as benefiting the recipient. 12/ These estimates are consistent with those developed by Kraft and Olsen [7] utilizing a small sample of public housing tenants and non-public housing renters in five cities. For this sample, the government cost of the subsidy averaged from $52 to $138 per month depending on income class (column 1 in Table 5) and the value of the subsidy utilizing the market value of the housing services provided averaged from $32 to $103 (column 2). Estimated cash equivalent values of the subsidy range from $12 per month at incomes of $7000-7999 to $96 at incomes of $3000-3999. Cash equivalent to government cost ratios, shown in column 5 of Table 5, rise with annual incomes over the lower ranges and then fall at annual incomes beyond $4000. These ratios never exceed 70 percent, on average across an income class, and are as low as 23 percent. They average 55 percent for all sample families. Kraft and Olsen estimate that 34 percent of the sample families occupied worse housing under the public housing program than they would have occupied in its absence. 13/

Table 5: Recipient Valuation of Public Housing Subsidies, 1972: Kraft and Olsen Study

Annual Income	(1) Monthly Subsidy	(2) Monthly Value of Subsidy	(3) Monthly Cash Equivalent	(4) (1)-(3)	(5) (3)/(1)	(6) (2)-(3)	(7) (3)/(2)
$ 0- 999	$ 87	$ 66	$40	$47	46%	$26	61%
$1000-1999	125	94	78	47	62	16	83
$2000-2999	133	101	93	40	70	8	92
$3000-3999	138	103	96	42	70	7	93
$4000-4999	128	97	86	42	67	11	89
$5000-5999	112	78	66	46	59	12	85
$6000-6999	75	55	31	44	41	24	56
$7000-7999	52	32	12	40	23	20	38
Average	99	74	54	45	55	20	73

Source: Kraft and Olsen [7], selections and derivations from Table 5, p. 19. Data in columns 1 and 2 were provided by Edgar Olsen.

The combined effect of a large annual subsidy from public housing and low cash equivalencies per dollar of subsidy would point to serious bias if government outlays on public housing were to be directly imputed to recipient incomes. Incomes might be overestimated by as much as $800 (on average over one family composition) and often by very large proportions of pre-public housing income.

Medicare and Medicaid

The Medicare and Medicaid programs provide health benefits to eligible persons by reimbursing fully or partially health care providers for specified health services. Medicare extends coverage to the aged and disabled populations eligible for Social Security or Railroad Retirement. It covers specified health services subject to various deductibles and coinsurance clauses; the Hospital

Insurance portion is free while Supplementary Medical Insurance has a premium which covers about one-half of costs and is currently $6.70 per month. Medicaid is an income-tested state program, partially financed by the Federal government, that provides benefits to persons and families receiving public assistance and in some states to those who would be eligible for public assistance were their incomes not above state public assistance income limits. Medicaid differs from state to state in the services covered and in its deductible and coinsurance provisions. There are, however, no premiums required for coverage.

Total government outlays on these two programs obviously reflect expenditures on health care of the eligible population. The more that is spent on health care, the higher are government outlays. This same relationship holds for the individual person or family who participates in either of these health programs: the more it spends on covered health care, the higher will be the subsidy it receives from Medicare or Medicaid.

But, to view the dollar subsidy (that is, the outlays under Medicare and Medicaid on behalf of the particular recipient) as a benefit to the recipient implies that the more a family spends on health care, the better off it is (since its subsidy would be higher). The strong inverse relationship between health status and health care expenditures makes this result untenable. 14/

A more acceptable approach where the welfare of individual recipients is at issue is to view Medicare and Medicaid as health insurance policies. Persons and families eligible for these programs will then be viewed as receiving a benefit whether or not they actually consume health services during the time period of concern. In this framework total premiums (subsidized and paid by recipients) will be equivalent to the actuarial value of the program and the subsidies will be equal to program outlays less any premiums required of the recipient.

When these programs are viewed as health insurance, it is necessary to consider a variety of crucial variables which affect an individual's demand or preferences for health insurance. First is the expected need for health services or the probability of illness (weighted by the cost of treating such an illness). The higher the probability of illness, of course, the greater is the demand for health insurance, ceteris paribus. This variable serves to assign higher benefits from health insurance to those with higher health expenditures. As a class, the aged are expected to have greater need for health services and there seems to be growing evidence that low-income families also have greater need as a result of poorer health status. Second, access to health care certainly affects the demand for health insurance. A family with superior health insurance benefits little if there are no doctors or hospitals available. In this regard, rural areas are thought to have particularly severe problems with respect to health care availability. Third, the extent of desired risk-taking will differ across families. The greater the aversion to risk, of course, the more valuable is health insurance.

These factors, together with income, will influence the preferences of persons and families for the insurance value embodied in the Medicare and Medicaid programs. If preferences for health insurance are low enough,

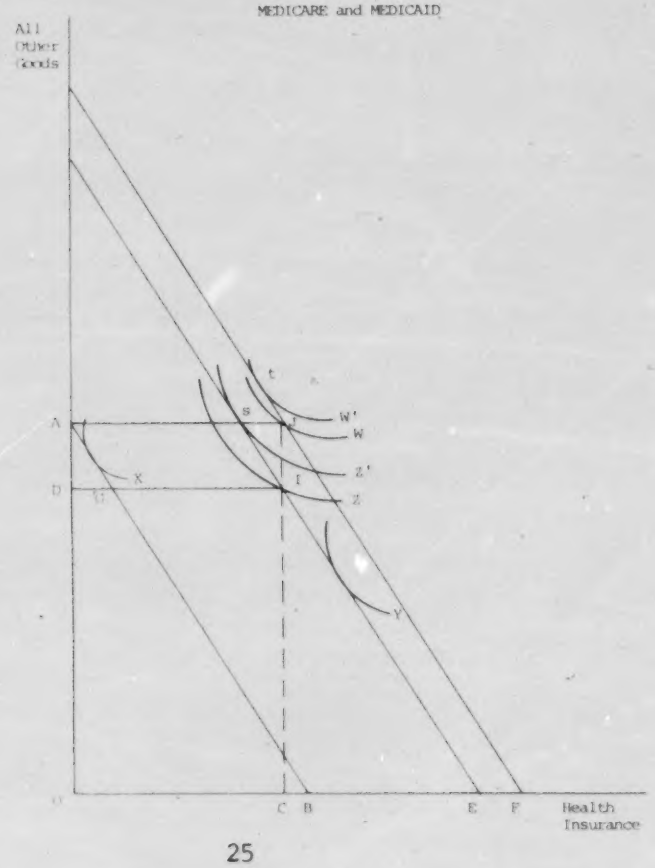
certain eligible families (indifference curve X in Figure 7) may choose not to participate in the Supplementary Medical Insurance portion of Medicare. Since the Hospital Insurance portion of Medicare and Medicaid involve no premiums, all eligible families should participate.

The cash equivalent values of Medicare and Medicaid, viewed as health insurance policies, are depicted in Figure 7. A health insurance policy of OC is offered under Medicare and/or Medicaid. Under Medicare, premiums of AD are charged policy holders and the new budget constraint is AGIE. Under Medicaid, which charges no premiums, the new budget constraint is AJF.

Given the budget constraint AGIE, if an individual's preferences are represented by indifference curve Y in Figure 7, he will choose to supplement the health insurance coverage provided by Medicare with a privately-secured policy(ies). As with food stamps, observation that outlays on the good in question exceed those provided by the program is a sufficient condition for a cash equivalent value equal to government cost. 15/ For individuals with preferences represented by indifference curves W and Z, however, a higher level of utility could have been attained had the transfers been in the form of cash, as shown by points t and s on the higher indifference curves W' and Z'.

FIGURE 7

MEDICARE and MEDICAID



Several additional factors might impact on the translation of government outlays into cash equivalencies in these programs. It was mentioned earlier in this section that recipient valuation might be greater than government cost if market imperfections were reduced. To the extent that Medicaid, and to a lesser degree Medicare, have improved access to health care among lower-income households, this effect cannot be dismissed. Operating in the opposite direction, that is to reduce the ratio of recipient valuation to government cost, is the possibility that government outlays on these programs are greater than in the private sector. Such an outcome would be possible were Medicare and Medicaid patients either charged higher fees by health care providers for the same service or provided with more services (e.g., operations or X-rays) than are medically necessary relative to privately-insured patients.

Finally, some mention must be made of the impact which the sharp rise in cost of health services over recent years had on the premiums of Medicare and Medicaid and, thus, on their cash income equivalents. It is estimated that one-half to two-thirds of the $7.0 billion or 40 percent projected increase in Medicare and Medicaid outlays from fiscal year 1974 to fiscal year 1976 (estimated) will be due to higher costs of medical services. 16/ While some of the higher costs may reflect improvements in the quality of medical services, price rises have undoubtedly been sizable. It is unclear how price rises should be handled in the context of in-kind subsidies and their cash income equivalents. Ideally, of course, total income in current dollars, including in-kind subsidies, should be deflated by an appropriately weighted price index. Or, if the measurement of poverty is the sole concern, the poverty line might be adjusted upward by an appropriately weighted price index while incomes remain in current dollar terms. In practice, however, there may be no appropriately weighted price index where goods consumed by families are subsidized, i.e., where expenditures are zero or substantially below cost. For example, if health care were provided free to all families, or at a nominal cost, presumably weights attached to health care in any price index would be very low or even zero. Yet, if health care subsidies are added to income in current dollars and health care prices are rising, real incomes of families will be overstated. 17/ It may be necessary, then, to convert the income derived from some in-kind transfers into real terms apart from application of overall price indices to total income.

These considerations, and the factors affecting individual preferences noted earlier, complicate the valuation issue for Medicare and Medicaid and are generally not reflected in the available estimates of recipient benefits from these programs. With these programs regarded as health insurance policies, Smeeding found the ratio of recipient cash valuation to government cost for Medicare and Medicaid to average .68 in 1972. As shown in column 4 of Table 6, the ratio rises from .58 for the lowest income households to .85 for the higher income households. This rise reflects two factors: (1) a falling proportion of families eligible for Medicaid as versus Medicare as income increases, in conjunction with a higher Medicare ratio; Smeeding found the ratios of cash equivalents to cost in 1970 to be .63 for Medicaid, .93 for Medicare, and .81 if both Medicare and Medicaid were

Table 6. Recipient Valuation of Medicare and Medicaid, 1972: Smeeding Study

Disposable Personal Income	(1) Average Medical Insurance Subsidy 1/	(2) Average Annual Cash Equivalent	(3) (1)-(2)	(4) (2)/(1)	(5) Average Medicaid Subsidy 1970	(6) Average Annual Cash Equivalent	(7) (5)-(6) 2/	(8) (6)/(5) 2/
$ 0- 999	$641	$373	$268	58%	$325	$152	$173	47%
1000-1999	863	468	395	54	421	221	200	52
2000-2999	661	393	268	59	499	244	255	49
3000-3999	525	335	190	64	397	268	129	68
4000-4999	484	326	158	67	373	284	89	76
5000-5999	474	328	146	69	368	276	92	75
6000-7499	485	336	149	70	323	253	70	78
7500-9999	440	339	101	77	260	213	47	82
$10,000 +	375	317	58	85	318	282	36	89

Source: Smeeding [16], selections and derivations from Tables C-7, p. 359, and D-7, p. 362.

1/ Includes Medicare and Medicaid.
2/ These estimates should not be compared with those shown in columns 3 and 4 for Medicare and Medicaid together since they are for different years and since Smeeding found the ratios of cash equivalents to government cost (columns 4 and 8) to fall considerably from 1970 to 1972.

received, and (2) a rise in the ratio within each program as income rises, as can be seen in column 8 of Table 6 for the Medicaid program.

The ratios of cash equivalents to government cost found by Smolensky et al. for five hypothetical families are somewhat higher than those found by Smeeding. The four-person family with an annual income of $4706 receiving Medicaid, for example, would value it at 74 to 85 percent of government cost, as can be seen in Table 7. These ratios also rise with income.

Table 7. Ratio of Cash Equivalent to Government Cost, 1970: Smolensky Study

		Medicare	Medicaid
Two-Person Family			
Income	$2869	81-89%	64-76%
Of	$4883	91-95%	na
Four-Person Family			
Income	$3414	na	67-78%
Of	$4706	na	74-85%
	$6572	na	na

Source: Smolensky et al. [17], selections from Table 4, p. 32.

As with the food stamp and public housing programs, true incomes would be overstated were Medicare and Medicaid valued at the cost to the government. This bias would be particularly serious for Medicaid where the recipient valuation appears to be less than three-quarters of government cost for most recipient families. Incomes might be overstated by more than $200 a year in some income classes, representing a 10 to 25 percent upward bias.

Bundles of Subsidies

Families and individuals may often receive more than one type of in-kind subsidy. The homeowner who can deduct interest and property taxes from income for Federal income tax purposes may well be receiving subsidized health insurance from his employer. Among the four in-kind transfer programs discussed in this section, there are considerable overlaps in coverage. The family receiving cash public assistance, for example, is at the same time categorically eligible for Medicaid and for food stamps and might be living in public housing as well. The aged individual receiving SSI may well be receiving food stamps, Medicaid, and Medicare benefits.

In estimating cash equivalents of in-kind income, it is necessary to specify bundles of subsidies received by families since the valuation of any one subsidy may well depend on the entire bundle. This follows from the shift which occurs in the pre-program budget constraint with the receipt of subsidies other than the particular subsidy (which we will call the "marginal subsidy") being valued. Receipt of other subsidies will shift the budget constraint outward, that is, raise the recipient's income, and may alter the slope of the budget constraint as well, that is, change relative prices between the marginal subsidy and all other goods. With an altered pre-program budget constraint, recipient valuation of the marginal subsidy may change. Exactly how it changes -- whether higher or lower -- is a complex process, the outcome of which is not obvious. Nevertheless, several important effects can be identified. First, increased income as a result of the receipt of other subsidies can, ceteris paribus, be expected to increase the cash equivalent of the marginal subsidy. Second, the degree to which the subsidized goods are substitutes will also be important. For example, Medicare and Medicaid are largely substitutes. Individuals enrolled in both will value the two combined less, relative to government cost, than they would value either singly. And for food stamp families whose children receive free or reduced price school lunches, the value of the full food stamp allotment may be less than if it were the only food subsidy received.

The Smeeding study does not value bundles of subsidies simultaneously. The Smolensky study does value bundles of subsidies jointly. In doing so, it was found that for food stamps, public housing, Medicare, and Medicaid jointly the ratio of recipient cash value to government cost was 83 percent. 18/

IMPLEMENTATION

Implementation of a cash plus in-kind income definition will require work in several areas: (1) a methodology for deriving cash equivalent estimates; (2) collection of information on the receipt of, and subsidy from, in-kind

subsidies on household surveys; and (3) possible changes in the poverty threshold. These topics will be discussed in turn.

Estimates of Cash Equivalents

The previous sections have described a theoretical framework for converting in-kind subsidies into cash income equivalents. Estimates of cash equivalents from several studies that have attempted to implement such a framework were also presented. Several of these studies illustrate the difficulties inherent in doing so. One study (Clarkson) utilized a utility function which, while tractable, has properties unacceptable for our purposes, namely constant proportions of income spent on items consumed. Another (Smeeding) by-passed utility functions entirely and derived estimates that are only gross approximations to cash equivalents. A third study (Smolensky et al.), faced with the difficulties of utility function estimation, chose to simulate cash equivalents by assuming various parameters of the utility function.

It is not within the scope of this paper to discuss utility function estimation. If the adoption of an income definition that includes in-kind income is contemplated, then the first step towards implementation should be a study of the feasibility of estimates that are derived from utility functions. Functions capable of estimation must be studied for the degree to which they are characterized by properties deemed essential to the analysis, such as absence of restrictions on price and income elasticities. 19/ Moreover, the earlier analysis makes it clear that both preferences for specific subsidized goods and the subsidy itself will vary by different demographic characteristics such as household size, age, and location. Cash equivalent estimates must allow for such variation by allowing utility function parameters to vary across relevant subgroups. Finally, it would be desirable to know the sensitivity of the cash equivalent estimates to alternative forms of the utility function. Murray [11] found, for example, that public housing cash equivalent benefits for one family composition differed by $14 a month -- or a 10 percentage point difference in the ratio of cash equivalents to government outlays -- depending on whether the CES or Cobb-Douglas function was utilized.

An approximation to the utility theory approach for valuing in-kind income, which is less desirable from a theoretical viewpoint, but easier to implement, is that contained in the Smeeding study. An OMB Interagency Committee, in reviewing poverty and income statistics in 1973, also mentioned such an approximation, calling it "net funds released for additional uses." 20/ Such an approach adds the in-kind income, valued at government cost, to cash income. Expenditures on the specified, subsidized good by the recipient of the in-kind subsidy are then compared to expenditures of a non-recipient with similar income (and similar demographic characteristics). If expenditures on the subsidized good by the recipient are greater than those of the non-recipient, the value of the in-kind income is reduced by the difference. For example, if a Medicare recipient (with no other health insurance policy) had cash income of $5000, if the health insurance value of Medicare were $500 at government cost, and if a non-Medicare recipient with cash income of $5500 spent $300 on health insurance, then the in-kind income from Medicare would be valued at $300.

This type of approximation would only by chance produce estimated cash equivalents that are identical with the utility theory approach. Most importantly, the marginal benefits from the additional consumption of the good over and above what the recipient (or the comparable non-recipient) would have consumed with cash are valued at zero. Such a zero valuation is highly improbable. Using the Medicare example, $200 of "excess consumption" of health insurance adds nothing to the household's income. This procedure thus leads to estimated cash equivalents that are below true values. Operating in the opposite direction, that is, towards cash equivalents that are too high, is the bias imparted by adding the subsidy into income at government cost in order to evaluate consumption. Again using the Medicare example, the income level used to evaluate consumption should have been about $5300, not $5500. This bias becomes more serious the greater the number of subsidies received by a single recipient. In general, such an approximation cannot deal appropriately with bundles of subsidies and the manner in which the demand for one subsidized good is affected by the receipt of other subsidized goods which are to varying degrees substitutes.

Another difficulty involving the empirical implementation of this approximation which may be important for the utility theory approach as well is the possibility that no comparable yet non-recipient group exists. If, for example, virtually no families are without subsidized health insurance there will be no group whose demand for health insurance is free of a subsidy element. Food stamps provide another case in point. All households with low incomes are eligible for food stamps, though only around 50 percent of eligible households participate in the program. To the extent that households decline to participate because of low preferences for food relative to other goods, the use of such households as the benchmark for valuing food stamps would bias the estimate of the cash equivalent of food stamps downward. The growth of in-kind income in recent years and its high incidence across the population make this a particularly difficult problem.

The above problems notwithstanding, this approximation approach is worthy of further exploration. Indeed, any implementation study should deal not only with the various problems of utility function estimation, but should assess approximations, including the one discussed above, that will be more tractable than the theoretically desired approach. Direct recipient estimates of willingness to pay -- for example asking a recipient of food stamps how much cash he would accept in lieu of the food stamp bonus -- should also be explored although they have many pitfalls.

Data Collection

In addition to the above issues concerned with empirical estimates of the cash equivalent of in-kind income, there are a variety of implementation issues that have to deal with the collection of data on recipiency of, and subsidies from, in-kind income. Statistics on income, income distribution, and poverty are compiled from data collected in household surveys. The decennial Census and the March Current Population Survey, described in other technical papers

associated with this study on the measurement of poverty, are the primary sources of such statistics. In order for in-kind income to be included in such statistics, these surveys will have to collect information on in-kind income received by individual households. Such information is sometimes difficult to obtain and, in addition, samples may not always be of sufficient size to allow population estimates within acceptable confidence limits. Even when feasible and statistically acceptable, such information would entail a considerable increase in the length of the current Census and CPS interviews and might, in fact, require entirely new household income surveys.

Several aspects of the collection of information on in-kind income received by households are touched upon briefly below. Clearly, collection difficulties vary for the different types of in-kind income. In some cases there are no serious problems and such data are currently being collected on household surveys. Food stamps is a case in point. For other types -- public housing or private health insurance — data problems may be severe.

Recipiency

Does a household (or do the various members therein) receive in-kind income? Two aspects of the problems associated with identification of recipients are important. First, can households correctly identify receipt of in-kind income? In some cases -- food stamps, Medicare, health insurance -- households can identify the receipt of such benefits. In others, it may be more difficult. For example, Medicaid goes by different names in different states and, in addition, households eligible for, but not using, Medicaid over a given period may have to be otherwise identified. Or, does a family know whether it is living in low-rent public housing or receiving subsidized medical care from a public hospital?

Second, can the survey's sample size (i.e., the numbers of households interviewed) support reasonable population estimates for highly localized subsidies, as in public housing, or for multiple receipt of subsidies, where incidence across the entire population may be low?

Recipient Subsidy

What subsidy at provider cost does the recipient receive? Here particularly, collection difficulties differ across types of subsidies. For Medicare and Medicaid, evaluated as health insurance policies, government outlays can be spread across enrollees and it is thus not necessary to ask recipients about the amount of subsidy received. For food stamps it is necessary to ask households what they pay for their stamps and what their stamp allotment is, easy enough tasks. Public housing presents a more difficult problem, requiring not only the rent a household pays for living in a public housing unit, but identification of the locality in which the household resides, and perhaps information on some characteristics of the housing unit (e.g., number of rooms); these latter data are necessary to permit a market value to be placed on the public housing unit by utilizing outside information from HUD or other sources. Similar

difficulties surround private health insurance. Not only is it necessary to know what the household pays in premiums, but the characteristics of the policy must be known as well since these characteristics determine its market value. It is unlikely that the household will know these characteristics; thus, outside sources such as employer or insurance company records may be required. For subsidies to homeownership through the income tax system it would be necessary to know not only the deductions taken for mortgage interest and property taxes, but the family's marginal tax bracket as well.

Poverty Threshold

The official poverty threshold is based upon the cost of the Department of Agriculture's (USDA) Economy Food Plan and is blown up by the inverse of the average food expenditure to income ratio of the U.S. population, as measured by the 1955 USDA food consumption survey. Income as defined and measured in the 1955 survey included only cash income. If in-kind benefits are added to income, in order to maintain consistency between income and the poverty threshold (as currently defined), the threshold should be increased to the degree the food consumption to cash plus in-kind income ratio is reduced. 21/

The food stamp program by itself does little to alter mean income across the U.S. population. When reported food stamp bonus values were added to 1974 incomes, annual mean income of families rose by $45 and of individuals by $15 -- increases of only 0.3 percent. 22/ Inclusion of health insurance and housing subsidies would, of course, have a much more dramatic impact on mean income.

Mention was made in the Introduction and Summary of the inadequacy of current poverty statistics in the face of the food stamp program which provides recipients with the Economy Food Plan in the form of the food stamp allotment at reduced cost. One method of allowing for the receipt of food stamps in the measurement of poverty that is not without appeal is to adjust poverty thresholds directly. That is, for every household receiving food stamps, the household's poverty threshold would be reduced by the bonus value or transfer from food stamps. Several arguments can be raised against such a procedure. First, the adjustment of the poverty threshold over a period of time has not kept pace with the rise in food prices. In recent years the threshold has been adjusted by the rise in the CPI which has lagged behind the rise in food prices alone. Thus, food stamp allotments are not currently equal to the food base of the poverty threshold. Second, food is the only budget item explicitly accounted for in the poverty threshold; were health and housing benefits also to be dealt with, they are more appropriately handled on the income side of the equation. Finally, adjusting the poverty threshold for food stamps might improve poverty measurement, but it would do nothing to improve relative measures of poverty or analyses of the distribution of income. Such analyses are of equal importance to the measurement of poverty. Adjustment of incomes for the receipt of in-kind subsidies would provide the widest range of information about relative well-being of households, permitting analyses of poverty or of the distribution of income.

In summary, implementation of a cash plus in-kind income definition involves three steps: (1) collection of information in household surveys on the receipt of the various types of in-kind income and of the subsidies received (or at least of the information necessary to derive the subsidies received); (2) determination of the cash income equivalents of the in-kind income; and (3) possible alteration of the poverty threshold. It is the general thrust of the discussion in this section that implementation is not a simple matter on any count.

Data collection problems, while inconsequential for some subsidies such as food stamps and Medicare, can be serious for others. Sufficient resources could probably overcome many of these problems, enabling long and detailed household questionnaires and associated checks of administrative records such as those of health insurance companies. Whether such resources would be made available is, of course, uncertain. If not, some types of in-kind income could not be valued. Then a decision would have to be made whether to include some types and not others -- e.g., include Medicare and Medicaid, but not private health insurance -- when doing so will distort income comparisons across households. 23/

After data are collected, the estimation of cash equivalents remains. The earlier discussion stressed the biases that would result if in-kind income were to be valued at provider cost. It showed that the theory exists for the estimation of cash equivalents, although implementation of the theory is difficult and must be explored further in order to determine the best approach. Clearly, though, some approach can be developed and fully implemented and, while subject to some estimation error, it will give a truer picture of the value or income equivalent of in-kind income than if provider cost were utilized as the standard. Once a technique for estimating cash equivalents is developed there is no reason why food stamps, at least, could not be included in income on a regular basis and utilized in poverty measurement.

Finally, lest the reader, faced with the difficulties of implementing the above framework and the need for making estimates, opt for the current situation which may seem less arbitrary, it should be stressed that to ignore in-kind income is not to avoid the problem. Rather, to ignore in-kind income is implicitly to place a value of zero upon it. And the earlier discussions have made it clear that in-kind income is, on the contrary, worth substantial sums to many families.

IMPACTS OF CERTAIN IN-KIND PROGRAMS ON INCOME AND POVERTY

The preceding section presented a framework for measuring how in-kind income affects individual recipients. The subject of this section is how certain in-kind programs affect income totals and distributions and numbers of persons in poverty. The magnitude of this effect will depend not only on the degree to which government outlays can be viewed as income to recipients, but also on the overall size of the in-kind programs (the number of recipients and the average subsidy) and on the distribution of program outlays among families at various income levels. In this regard, the poverty status of recipient families is of particular interest.

Income impacts, and particularly poverty impacts, of in-kind programs are poorly documented and, indeed, are somewhat unknown. This section, thus, begins by describing briefly the eligibility criteria and benefit schedules of the four programs on which this study focuses: food stamps, Medicare, Medicaid, and public housing. Any information that is available on the income and poverty status of recipients is also put forward. The extent of multiple program receipt is then assessed. Finally, the findings of several studies dealing with the anti-poverty impacts of food stamps separately and of the four in-kind programs jointly will be discussed.

PROGRAM DESCRIPTIONS AND INCOME STATUS OF RECIPIENTS

Food Stamps

The food stamp program permits households which meet income and asset eligibility standards -- and a work requirement test -- to purchase food coupons at a zero or reduced price. The food coupons may then be redeemed for most food items at participating grocery stores. The difference between the value of the food coupons and the price paid for them is the transfer deriving from the program -- the so-called bonus value.

The program parameters that determine program benefits and eligibility are the coupon allotments (that is, the value of the food coupons) and the purchase requirement (that is, the price that must be paid for the food coupons). Allotments are based on the cost of the U.S. Department of Agriculture's Economy Food Plan and vary with household size. Current monthly allotments are shown in Table 8 and are $48 for a one-person household, $162 for a four-person household, and $278 for an eight-person household.

Purchase requirements can be no more than 30 percent of a household's net income. The program's benefit reduction (or tax) rate is, thus, 30 percent and, in conjunction with allotments, determines maximum income eligibility (except for one-person households). This relationship is allotment ÷ .30 = maximum income eligibility, or, for a four-person household, $162 ÷ .30 = $540. A four-person household with countable monthly income below $540 is, thus, currently eligible for the food stamp program. Current income limits for all size households are shown below.

Table 8. Monthly Coupon Allotments and Purchase Requirements (Effective July 1, 1975) 48 States and D.C.

Monthly Net Income	Number of Persons in Household: 1	2	3	4	5	6	7	8
	Monthly Coupon Allotments: $48	$90	$128	$162	$192	$222	$250	$278
	Monthly Purchase Requirement:							
$ 0 to 19.99	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
20 to 29.99	1	1	0	0	0	0	0	0
30 to 39.99	4	4	4	4	5	5	5	5
40 to 49.99	6	7	7	7	8	8	8	8
50 to 59.99	8	10	10	10	11	11	12	12
60 to 69.99	10	12	13	13	14	14	15	16
70 to 79.99	12	15	16	16	17	17	18	19
80 to 89.99	14	18	19	19	20	21	21	22
90 to 99.99	16	21	21	22	23	24	25	26
100 to 109.99 ...	18	23	24	25	26	27	28	29
110 to 119.99 ...	21	26	27	28	29	31	32	33
120 to 129.99 ...	24	29	30	31	33	34	35	36
130 to 139.99 ...	27	32	33	34	36	37	38	39
140 to 149.99 ...	30	35	36	37	39	40	41	42
150 to 169.99 ...	33	38	40	41	42	43	44	45
170 to 189.99 ...	36	44	46	47	48	49	50	51
190 to 209.99 ...	36	50	52	53	54	55	56	57
210 to 229.99 ...	38	56	58	59	60	61	62	63
230 to 249.99 ...		62	64	65	66	67	68	69
250 to 269.99 ...		68	70	71	72	73	74	75
270 to 289.99 ...		70	76	77	78	79	80	81
290 to 309.99 ...		70	82	83	84	85	86	87
310 to 329.99 ...			88	89	90	91	92	93
330 to 359.99 ...			94	95	96	97	98	99
360 to 389.99 ...			100	104	105	106	107	108
390 to 419.99 ...			109	113	114	115	116	117
420 to 449.99 ...			110	122	123	124	125	126
450 to 479.99 ...				131	132	133	134	135
480 to 509.99 ...				138	141	142	143	144
510 to 539.99 ...				138	150	151	152	153
540 to 569.99 ...				138	159	160	161	162
570 to 599.99 ...					164	169	170	171
600 to 629.99 ...					164	178	179	180
630 to 659.99 ...					164	187	188	189
660 to 689.99 ...						190	197	198
690 to 719.99 ...						190	206	207
720 to 749.99 ...						190	214	216
750 to 779.99 ...							214	225
780 to 809.99 ...							214	234
810 to 839.99 ...							214	238
840 to 869.99 ...								238
870 to 899.99 ...								238
900 to 929.99 ...								238

For each additional household member over eight, add $22 to the eight-person allotment.

Table 9. Maximum Income Eligibility Limits, July - December 1975

Number of Persons In the Household	Monthly Income Limits
1	$215
2	300
3	427
4	540
5	640
6	740
7	833
8	926
Each additional person	+73

The annual incomes implied by the above monthly amounts range from $2580 for a one-person household to $6480 for a four-person household to $11,112 for an eight-person household. Except for the one-person household, these annual income eligibility limits are above 1974 poverty thresholds. Moreover, these income limits are in terms of countable (or net) income under food stamp income definitions. These definitions allow for a wide range of deductions from gross income in arriving at countable income. Such deductions include mandatory deductions from earnings, a work expense allowance up to $30 per household per month, child care and educational expenses, shelter costs in excess of 30 percent of income, medical costs when in excess of $10 per month, and casualty losses. Countable income may, for some households, be significantly below gross income and, thus, maximum eligible incomes in the food stamp program may be well in excess of poverty thresholds for these same households. In addition, households in which all members receive public assistance are categorically eligible regardless of income.

The allotment, less the purchase requirement, determines a household's bonus value (or transfer). As noted earlier, allotments rise with household size. Purchase requirements rise with household income, in absolute dollar terms and as a fraction of income as well, since purchase requirements vary from zero at the lowest incomes to a maximum of 30 percent of income. Monthly purchase requirements are shown in Table 8 for various income levels. Reflecting these relationships bonus values will rise with household size and as income falls, ceteris paribus. Monthly bonus values can be quite high if incomes are low enough, particularly for large size households. Some selected monthly bonus values are shown in Table 10. At a monthly income of $100 (annual income = $1200), a one-person household would receive $30 a month or $360 a year in bonus coupons. At a monthly income of $350 (annual income = $4200), a four-person household would receive $67 a month or $804 a year in bonus coupons while an eight-person household would receive $179 a month or $2148 a year.

Table 10. Selected Monthly Bonus Values, July - December 1975

Monthly Net Income	Household Size				
	1	2	4	6	8
$ 25	$47	$89	$162	$222	$278
50	40	80	152	211	266
100	30	67	137	195	249
150	15	52	121	179	233
250		22	91	149	203
350			67	125	179
450			31	89	143
550			24	62	116
750					53

Allotment amounts are adjusted semi-annually to reflect changes in food prices. Since purchase requirements are not altered simultaneously (except for households in the highest income brackets), these upward adjustments in allotments will generally raise bonus values by the full amount of the allotment increase and will also raise income eligibility limits in current dollar terms. If money incomes of eligible households also rise, purchase requirements will increase, reducing the rise in bonus values ceteris paribus. Whether bonus values (in current dollars) to households rise or fall over time will depend on relative changes in food prices and money incomes.

The sharp rise in food prices in recent years has increased income eligibility limits in the food stamp program. At the same time, the number of counties with food stamp programs has risen sharply. All counties in the U.S. now offer a food stamp program. Numbers of program participants depend not only on the numbers of eligible households, but on the participation rate among eligible households which is now estimated to be around 50 percent. 24/ Participation in the food stamp program in May 1975 totaled 19.5 million persons. Transfers totaled $424 million and average transfers per recipient $22 for the month. Federal outlays on food stamps are projected at around $6 billion in fiscal year 1976.

The annual income status of food stamp recipients is shown in Table 11. While several sources of information on the income status of food stamp households are available, these particular data were chosen because they utilize March CPS income data, the official source of current income and poverty statistics. These data view poverty in terms of annual income levels. The food stamp program, however, uses monthly income for purposes of eligibility determination. Many of the statistics cited in the next few pages (such as food stamp recipients in poverty) would differ if monthly rather than annual income were utilized.

While Table 11 shows the bulk of recipients to have low incomes - median family income is 36 percent of the median for all families -- there is a noticeable proportion of households with annual incomes above $10,000. Some of these households may have incomes below food stamp eligibility limits if family sizes are high enough. Several other reasons why, within program rules, households with high annual gross money incomes may receive food stamps at some time during a year are that (1) incomes may be low for one or a few months, allowing program eligibility for that period, but high over the entire year; (2) not all persons in a household need to receive food stamps, and income of nonrecipient household members is included in the data in Table 11 - this phenomenon may be particularly important for this data base since household compositional changes during the 16 month period between January 1, 1974, and the survey week in April 1975 could have been considerable; and (3) income definitions for food stamp purposes allow many deductions from income, as noted earlier, while CPS income is on a gross basis.

A recent study found that most of the food stamp households with high annual incomes could be accounted for by the above three factors. 25/ Data from a recent U.S. Department of Agriculture survey (the Chilton survey) showed the households certified eligible for food stamps in the single month of November

Table 11. Income Distribution of Food Stamp Families and Unrelated Individuals, 1974

	Percent of Food Stamp Recipients	
Annual Income	Families	Unrelated Individuals
Under $1000	2.5%	7.4%
$1000-$1499	3.3	10.1
$1500-$1999	4.7	34.6
$2000-$2499	6.5	25.2
$2500-$2999	8.0	7.9
$3000-$3499	9.3	6.9
$3500-$3999	7.8	1.6
$4000-$4999	14.0	2.6
$5000-$5999	10.1	0.4
$6000-$6999	7.3	0.7
$7000-$7999	4.7	1.1
$8000-$8999	4.2	0.3
$9000-$9999	3.3	0.3
$10,000-$11,999	4.6	1.0
$12,000-$14,999	4.3	-
$15,000 and over	5.5	-
Median Income	$4565	$1970
Mean Income	$5896	$2252

Source: Coder [4], selections from Table 1. These data come from a match of households reporting the receipt of food stamps on the April 1975 supplement to the Current Population Survey (CPS) with the March 1975 CPS income information for the identical households. Income as shown above is thus cash income as defined, collected, and edited in the CPS.

Table 12. Income Distribution of Food Stamp Households, November 1973

Monthly Net Income	Percent of Food Stamp Households
$0-$29	3.6
$30-$59	1.8
$60-$89	6.9
$90-$119	8.2
$120-$149	12.8
$150-$179	10.7
$180-$209	9.4
$210-$239	8.0
$240-$269	6.6
$270-$299	6.4
$300-$399	11.8
$400-$499	7.1
$500-$599	3.6
$600-$699	1.6
$700-$799	.7
$800 and over	.9

Source: Subcommittee On Fiscal Policy [21], selections from Table 1, p. 9.

1973 had monthly net incomes considerably below those shown in Table 11. For example, 53 percent had incomes below $209 a month and fewer than one percent had incomes of $800 or more a month. These data are shown in Table 12.

It is clear from maximum income eligibility levels and from these data that many recipients of food stamps are not poor under current poverty definitions which utilize annual income. In fact, in 1974 about 53 percent of food stamp families and 75 percent of unrelated individuals were below the poverty line. Among families and unrelated individuals purchasing food stamps during every month of 1974, 67 and 82 percent, respectively, were poor. 26/

Moreover, only about 40 percent of poor families and 20 percent of poor unrelated individuals are recipients of food stamps. Because of the underreporting of income and because asset holdings may be higher than program rules permit, some poor families may not be eligible for food stamps. Among poor families purchasing food stamps, 61 percent reported purchasing stamps in every month of 1974. 26/ The potential impact of the food stamp program on incomes of poor households is thus considerably tempered by the relatively low proportion of poor households participating in the program.

Public Housing

The Department of Housing and Urban Development provides housing subsidies to low-income families through a variety of programs that reduce rents or mortgage payments of such households. In fiscal year 1975, Federal outlays under the low-rent public housing and Section 235, 236, and 101 programs are estimated to have totaled $2.4 billion. Low-rent public housing (LRPH), with outlays estimated at $1.5 billion in FY 1975, accounts for the bulk of these low-income housing subsidies. In future years the Section 8 program that allows recipients to choose their own rental units for leasing by the local housing authority, subject to its approval, will increase in importance. At present, however, LRPH is the single most important housing subsidy to low-income households.

The LRPH program, begun in 1937, assists low-income families in obtaining decent places to live. Public housing projects are operated by local housing authorities (LHA). Operating costs are partially subsidized by the Federal government. The local character of the program is reflected in locally-determined eligibility criteria and benefits to recipients. Occupancy of public housing projects is open to families (or to single elderly, handicapped, or disabled individuals) who meet the income test. The income limitation is determined by the LHA based on local housing costs. At least 20 percent of all units in a project should be reserved for "very low-income families", that is, families whose income does not exceed 50 percent of the median income for that area adjusted for smaller or larger than average families. In 1972, the median income of families moving into public housing was $1990 for elderly families and $2816 for all families. 27/ Income limits for continued occupancy are somewhat higher — generally around 125 percent of initial eligibility limits. Income definitions allow for sizable deductions from gross income in determining countable income for eligibility purposes.

Benefits accrue to tenants in the form of below market rents. Rents paid by tenants are based on family income, size, and other characteristics as determined by the LHA. Typically, rents are 20 to 25 percent of income and may not exceed 25 percent of a family's adjusted income. In 1972, the median monthly rent for initial occupancy was $38 for an elderly family and $48 for other families. 28/

The impact of public housing on the low-income population in the aggregate is limited since public housing tenants form a very small proportion of low-income households. Not all areas are served by public housing. In a sample of 100 counties, for example, it was found that about 74 percent of the poverty population lived in counties with public housing. 29/ And in counties where public housing is available, units are often restricted to only a few eligible households. In particular, the more urbanized an area, the more public housing units appear to be available relative to the poverty population. In metropolitan counties with high population densities, there is one public housing unit for every five households in poverty while non-metropolitan counties with low population densities provide only one public housing unit for every 16 households in poverty. 30/

Moreover, as with most Federal transfer programs, recipiency is not restricted to households with incomes below the poverty line. As Table 13 shows, recipients, while concentrated among households with annual incomes below $5000, in some cases have incomes rising above $8000. In any event, the table also shows that tenants of LRPH form very small proportions of all households in the respective income classes. Of all families in the U.S. with annual incomes below $3000, 95 percent were not served by the public housing program at the end of 1972. 31/

Table 13. Distribution of Low-Rent Public Housing (LRPH) And Benefits by Income Class, December 31, 1972

Gross Income	Households Served by LRPH	LRPH Households As A Percentage of All Households	Mean Annual Benefits to LRPH Tenants
$0-999	25,910	1.5%	$ 696
1000-1999	283,120	7.4	900
2000-2999	248,520	5.8	1044
3000-3999	183,860	4.7	1008
4000-4999	124,290	3.2	972
5000-5999	73,260	2.0	648
6000-6999	45,760	1.3	708
7000-7999	27,900	.7	504
8000 or more	42,420	.1	624
TOTAL	1,055,050	1.5	na

Source: Department of Housing and Urban Development [27], pp. 127-128.

Those households that do receive benefits from public housing receive a sizable annual transfer, as the preceding table shows. Valuation in cash equivalent terms, however, reduces governmental transfers by at least 30 percent on average and by as much as 70 percent for the higher income households, as was shown in the second section. While precise estimates are not available, it seems unlikely, then, that public housing by itself can account for more than a minor change in the numbers of households in poverty. This does not imply, however, that the few households who do derive benefits from the low-rent public housing program are not better off relative to other households.

Medicare and Medicaid

Medicare and Medicaid provide in-kind health benefits partially or fully by reimbursing recipients for payments made in securing health services in the private market. Medicaid is an income-tested program for public assistance recipients and for medically needy households in some states while Medicare serves the aged population and the disabled eligible for Social Security or Railroad Retirement. As was discussed in the second section, both programs are most appropriately viewed as packages of health insurance with various levels of coverage and premiums. The two programs are reviewed in turn. 32/

The Medicare Program, established in 1965 under Title XVIII of the Social Security Act, is composed of two health insurance plans to assist the elderly and disabled. Together, Hospital Insurance and Supplementary Medical Insurance comprise a system that covers hospital and medical costs through deductible and coinsurance cost sharing with the insured.

The Hospital Insurance program (HI) provides coverage for hospital bills. The target population initially was anyone of age 65 or over, but with the addition of a 1973 amendment has been broadened to include disabled and renal disease patients. Households must be eligible for Social Security or Railroad Retirement to obtain full benefits. 33/ HI is financed through an earmarked payroll tax. While there are no HI premiums for currently eligible persons, such persons will have paid the payroll tax during their working years.

Supplementary Medical Insurance (SMI), also enacted in 1965, provides coverage for physicians' services and medical supplies for enrollees, subject to various deductibles and coinsurance provisions. Eligibility is open to all HI enrollees and to U. S. citizens of age 65 or over. Enrollees pay premiums -- currently $6.70 per month -- equal to half the cost of the coverage; the remainder is financed from general revenues. States may cover these premium costs for aged persons receiving public assistance (money payments or medical assistance).

Table 14 below shows estimated costs and coverage for HI and SMI during FY 1975. Together, the programs paid $13 billion in net benefits and covered over 23 million persons. In 1973, over 96 percent of the aged population was enrolled in both options. Under HI, average payments per beneficiary in FY 1973 were $1414 and per enrollee were $318, while for SMI the respective

Table 14. Medicare Costs and Coverage, FY 1975 (Estimated)

	Net Benefit Cost (In Billions)	Beneficiaries (Avg. Monthly In 000)	Coverage (Avg. Monthly In 000)
HI	$9.4	5,600	23,500
SMI	$3.6	12,200	23,000

Source: Subcommittee On Fiscal Policy [22], pp. 197, 198, and 205.

figures were $228 and $117. 34/ Data are not available on the numbers of persons and families in poverty or with low-incomes covered by Medicare.

The Medicaid program, enacted in 1965, enables each state to assist eligible low-income households in meeting their health needs. The Federal government reimburses the states for a portion of Medicaid costs, ranging from 50 to 83 percent depending on state per capita income. Eligibility and benefits vary widely across states.

In broad outline, there are two categories of eligibility for Medicaid. The first, categorical coverage, is mandated by the Federal government for all states which provide Medicaid programs. Those eligible under this coverage in general include all public assistance cash recipients and certain other specified groups which would be eligible for public assistance except for technicalities. States have also elected to include certain other categorically needy groups. The second form of coverage is to the "medically needy." These are persons who meet the basic (non-income) eligibility conditions for coverage of the categorically needy, but with income in excess of limits yet insufficient to pay for medical care. Twenty-five states and the District of Columbia extend Medicaid to the medically needy.

Income limits for the categorically needy are generally identical to those in the respective public assistance programs. For the medically needy, Federal financial participation covers only persons with countable incomes equal to or below 133 1/3 percent of the state's AFDC basic benefit or guarantee for a similar size family. State income limits may be below this amount. In July 1973, median annual income limits in the states offering coverage for the medically needy were $2052 for one person and $3636 for a four-person family; however, income limits varied across those states from $1400 to $3000 for one person and from $2800 to $5000 for a four-person family. 35/ Countable incomes below these levels qualify families for full reimbursement of health care costs specified in the state plan. Families with higher incomes, however, may qualify for some medical assistance if medical outlays reduce income below state limits; for such families, Medicaid would cover some portion of medical outlays.

Benefits are derived from the full or partial payment of specified medical costs to health care providers. The scope of services provided under Medicaid differs across states. States may impose deductibles in most cases, but there is apparently no current information on state practices in this regard. In fiscal year 1975, Medicaid is estimated to have cost $12.2 billion and covered 24.7 million persons. 36/ As with Medicare, no data are available on recipients by income or poverty status. Clearly, however, most Medicaid recipients will have low incomes and many will have incomes below the poverty threshold.

RECEIPT OF MULTIPLE IN-KIND BENEFITS

Households that receive one in-kind transfer have varying probabilities of receiving other in-kind transfers. The more types of in-kind income a household receives, of course, the greater is the likelihood that the inclusion of in-kind benefits in income will raise that household out of poverty. The extent of overlapping benefits is, thus, crucial to the issue at hand. Data on the receipt of multiple types of in-kind income are, at best, sketchy. No reliable national statistics exist on the extent of such overlaps among the population as a whole. Pieces of evidence are offered in this section on overlaps in governmental in-kind transfer benefits for recipients of particular programs or for particular areas. The four programs discussed earlier are of primary concern.

Categorical coverage offers direct evidence of the potential overlaps among certain programs. Recipients of cash public assistance (AFDC, SSI) are generally categorically eligible, that is eligible without respect to income, for food stamps and for Medicaid. 37/ Not all public assistance recipients participate in the food stamp program; in January 1973, 60 percent of AFDC families were receiving food stamps at a time when about 80 percent lived in counties with a food stamp program. 38/ At that time, 70 percent of the AFDC families on food stamps received a monthly bonus value from food stamps of from $30-99, as shown in the table below.

Table 15. Monthly Bonus Values of AFDC Families Receiving Food Stamps in January 1973

Monthly Bonus Value	Percent of Families
$29 or less	20%
$30-$59	43
$60-$99	25
$100 or more	9

Source: DHEW, SRS, NCSS [23], p. 95.

In addition to receipt of programs for which they are categorically eligible, public assistance families may receive other in-kind subsidies. Since in-kind income is usually not counted as income for purposes of income tests under most programs, the potential for program overlap may be considerable. In January 1973, 13.6 percent of AFDC families were in public housing and another 5 percent occupied their dwelling units rent-free. 39/ These percentages varied sharply across states: from 5 percent in public housing in Wisconsin to 23 percent in Tennessee and from 1 percent rent-free in Wisconsin to 35 percent in Mississippi. Southern states often had the higher percentages of AFDC families living in public housing or rent-free units.

Since AFDC families include children, the school lunch program can be of some importance to them. It has been estimated that some 59 percent of AFDC families have one or more children receiving free or reduced-price school lunches. 40/ Besides health, food, and housing benefits, AFDC families are also entitled to a range of social services. One of the more important of these to the family's current income situation is vendor payments for child care. In January 1973, some 19 percent of AFDC families received child care assistance. 41/

Data have recently become available on the receipt of other program benefits by food stamp recipients, as reported in the USDA survey of food stamp households (the Chilton survey). In November 1973, among food stamp households, 38 percent received school lunches, 12 percent lived in public housing, about 36 percent received at least the Hospital Insurance portion of Medicare, and 60 percent received AFDC and thus Medicaid. 42/

As for Medicaid, in November 1973 some 72 percent of beneficiaries also received public assistance. For fiscal year 1973, the average Medicaid payment per AFDC family was $770. 43/ While accounting for some three-quarters of beneficiaries, only 52 percent of Medicaid outlays went to public assistance recipients. 44/ Per-person Medicaid outlays are likely to be higher for non-public assistance households since such households often qualify for medical assistance precisely because of high medical expenditures. For example, among aged recipients of Medicaid in 1973, the average monthly vendor payment was $71 for cash public assistance recipients but $278 for non-recipients. 45/ Some states also pay private health insurance or SMI premiums for persons eligible for Medicaid.

A recent study of the Subcommittee On Fiscal Policy [19] provides the first, and only, available information on multiple programs. These data for 1972 cannot be generalized to represent multiple program receipt for the entire U.S. population nor even for all low-income areas. Nevertheless, for the five cities and one rural area for which data were collected, the findings are unique and interesting. 46/

The proportions of sample households with various in-kind transfers are shown in Table 16. Food stamps or commodities, school lunches, and Medicaid were separately received by up to 27 percent of sample households in some areas. The variance across areas in the proportions receiving these programs is striking. The several rural counties in the sample often had fewer

Table 16. Percent of Households with Various Benefits

Type of Benefit	Eastern City	South Atlantic City	Southern City	Midwestern City	Western City	Rural Counties
Food stamps or commodities	20	24	11	12	16	15
School lunches	14	27	27	10	5	5
Housing	14	23	22	4	4	1
Medicaid	22	24	27	20	18	11
Medicare	3	13	9	13	9	12

Source: Subcommittee On Fiscal Policy [19], selections from Table 6, p. 29.

proportions participating. Variations across areas partly reflected differences in the proportions of households receiving public assistance: 13 percent in the rural counties, 16-19 percent in the midwestern and western cities, and 31 percent in the eastern and southern cities. 47/

Program overlaps for sample households at each site are shown in Table 17. It should be noted that the numbers of in-kind programs considered in the study are greater than the four to which this paper has confined itself; the exact programs considered are listed in the footnotes to Table 17. Highlights of the table are that:

— Among households receiving public assistance, 58 to 79 percent received food benefits, 70 to 95 percent received health benefits, and zero to 45 percent received housing benefits.

— Among households receiving food benefits, 52 to 77 percent received health benefits and zero to 40 percent received housing benefits.

— Among households receiving health benefits, 37 to 67 percent received food benefits and zero to 33 percent received housing benefits.

— Among households receiving housing benefits, zero to 73 percent received food benefits and zero to 82 percent received health care benefits.

Table 17. Overlaps Among Pairs of Programs By Area

Program Type	Percent of Total Beneficiary Households Also Receiving: Public Assistance	Food Programs 1/	Health Care Programs 2/	Housing Programs 3/
Eastern City				
Public Assistance	100%	63%	70%	27%
Food	71	100	63	26
Health Care	85	67	100	33
Housing	59	49	59	100
South Atlantic City				
Public Assistance	100	79	85	37
Food	56	100	72	36
Health Care	49	58	100	32
Housing	42	56	64	100
Southern City				
Public Assistance	100	58	89	45
Food	69	100	77	40
Health Care	53	39	100	30
Housing	63	48	71	100
Midwestern City				
Public Assistance	100	66	84	14
Food	57	100	63	14
Health Care	43	37	100	8
Housing	55	64	64	100
Western City				
Public Assistance	100	59	76	15
Food	67	100	73	15
Health Care	55	46	100	11
Housing	82	73	82	100
Rural Counties				
Public Assistance	100	65	95	0
Food	47	100	52	0
Health Care	49	37	100	0
Housing	0	0	0	100

Source: Subcommittee On Fiscal Policy [19], selections and derivations from Tables 34-39, pp. 77-82.

1/Includes food stamps, food distribution, and child nutrition.
2/Includes Medicare, Medicaid, public health services, veterans medical care, and OEO health and nutrition services.
3/Includes public housing, rent supplements, and interest subsidies for homeowners (Sec. 235), and rental housing (Sec. 236).

Overlaps differ greatly across these six areas. Clearly, however, multiple benefits are sizable for some households and, in these specific geographic areas, can be categorized as affecting a majority of the households receiving in-kind transfers.

IMPACTS ON THE DISTRIBUTION OF INCOME AND POVERTY

How and by how much in-kind transfers alter the distribution of income and poverty counts may be simple questions, but they do not lend themselves to quick and simple answers. Total transfers and total numbers of transfer recipients are, of course, important determinants. But the pre-transfer incomes of recipients and the variation in individual transfer amounts across recipients are also crucial. The preceding two sections showed the numbers of recipients and transfer amounts to vary sharply across households for both single programs and bundles of programs.

Several recent studies have addressed the measurement of these income and poverty impacts. The first two assess the income and anti-poverty impacts of the food stamp program. While they do not reduce bonus values to their cash income equivalents, they are notable in that they utilize actual reported data on bonus values received by households in conjunction with reported cash incomes. Two other studies analyze the four transfers emphasized throughout this paper: food stamps, Medicare, Medicaid, and public housing. These studies do measure transfers in cash equivalent terms, but must rely on estimates and simulations of program recipients and of amounts received. Results of these four studies are discussed below.

The impact of food stamps on incomes and poverty status in 1974 is the subject of the Coder [4] study. This study utilizes data on households interviewed in both March 1975 and April 1975 for the Current Population Survey (CPS) of the Bureau of the Census. 48/ The March CPS contains household cash income information while the April CPS food stamp supplement -- funded by the Department of Health, Education, and Welfare — contains information on the receipt of food stamps during 1974 and on bonus values. Thus food stamp bonuses could be directly added into recipient incomes.

These data show total transfers (bonus values) from food stamps in 1974 of $2.6 billion. 49/ Bonus values per person among participants (numbering 17,078,000) averaged $151 per year. Bonuses per family averaged $605 ($917 among families receiving food stamps in all 12 months). 50/ Income changes from the addition of bonus values, as shown in the Coder paper, are reproduced in Table 18. Families and unrelated individuals were clearly pushed higher up the income scale from the receipt of food stamp transfers.

Median income of all families in the population was increased by $8 annually and mean income by $45. Among food stamp families average income rose by $605 or 10% and median income by 14 percent.

Table 18. All Families and Unrelated Individuals, and Families and Unrelated Individuals Participating in the Food Stamp Program, in 1974, By Total Money Income and Income After Addition of Annual Food Stamp Bonus Value

	Families				Unrelated Individuals 1/			
	Total Money Income		Income After Bonus		Total Money Income		Income After Bonus	
Income	Total	Purchased Food Stamps in 1974	Total	Purchased Food Stamps in 1974	Total	Purchased Food Stamps in 1974	Total	Purchased Food Stamps in 1974
Number...Thousands....	55,712	3,923	55,712	3,923	13,939	954	13,939	954
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under $1,000.....	1.3	2.5	1.2	1.3	4.0	7.4	3.8	4.1
$1,000 to $1,499.....	0.6	3.3	0.5	1..	3.7	10.1	3.6	8.9
$1,500 to $1,999.....	0.7	4.7	0.6	2.3	8.0	34.6	7.0	20.1
$2,000 to $2,499.....	1.2	6.5	1.0	4.1	9.8	25.2	10.6	36.9
$2,500 to $2,999.....	1.5	8.0	1.4	5.8	8.9	7.9	9.2	12.0
$3,000 to $3,499.....	1.8	9.3	1.7	7.7	7.5	6.9	7.6	8.3
$3,500 to $3,999.....	1.8	7.8	1.9	9.0	4.4	1.6	4.5	3.0
$4,000 to $4,999.....	4.1	14.0	4.3	15.9	8.3	2.6	8.3	2.3
$5,000 to $5,999.....	4.4	10.1	4.7	13.3	6.8	0.4	6.9	1.0
$6,000 to $6,999.....	4.4	7.3	4.5	8.6	6.2	0.7	6.2	0.5
$7,000 to $7,999.....	4.5	4.7	4.6	6.2	5.4	1.1	5.4	1.3
$8,000 to $8,999.....	4.6	4.2	4.7	5.1	4.7	0.3	4.7	0.3
$9,000 to $9,999.....	4.7	3.3	4.7	3.7	3.8	0.3	3.8	0.3
$10,000 to $11,999....	10.2	4.6	10.3	5.3	6.6	1.0	6.6	0.7
$12,000 to $14,999....	14.1	4.3	14.2	4.7	5.7	-	5.7	0.3
$15,000 to $24,999....	28.3	4.7	28.4	5.0	5.0	-	5.0	-
$25,000 or more.....	11.5	0.8	11.5	0.8	1.1	-	1.1	-
Median income.....	$12,836	$4,565	$12,844	$5,203	$4,430	$1,970	$4,433	$2,229
Mean income.....	$14,502	$5,896	$14,547	$6,501	$6,169	$2,252	$6,184	$2,469

- Represents zero.

1/Numbers represent primary unrelated individuals living alone (one-person households). Other households headed by primary individuals were excluded since no data were available to determine which persons in the household purchased food stamps.

SOURCE: Coder [4], Table 1.

The Coder study's estimates of the impact of food stamps on poverty are shown in Table 19. Among pre-food stamp poor families and unrelated individuals purchasing food stamps some time during 1974, some 1.5 million persons, or 16 percent, were removed from poverty. The poverty reduction rate was somewhat higher -- 21 percent -- among such persons who purchased food stamps in all 12 months of 1974. The reduction in poverty across the entire poverty population, totaling 24.3 million persons in 1974, was only 6.4 percent. If persons who did not report receiving food stamps when, in fact, they did (the underreporters mentioned earlier) were removed from poverty at the same rate as persons who did report food stamps, then the poverty reduction rate across the entire population would have been about 8 percent.

Coe et al. [5], utilizing the Michigan Longitudinal Survey, estimated that for 1971 15.7 percent of the school-aged children who were poor moved above the poverty line as a result of food stamp bonuses. 51/ This estimate is higher than Coder's, in part because children rather than all persons are the subjects, because cash incomes were adjusted upward for the value of free housing and imputed rents for homeowners (less Federal income taxes) prior to the addition of food stamp bonuses, and because annual bonus values were overstated as a result of imputation procedures.

Were bonus values reduced to their cash income equivalents, the impact of food stamps on poverty would be lessened even further. How much further is not clear. 52/ While estimates of the cash equivalent income from food stamps were shown in the second section to average around 85 percent of bonus values, they varied sharply by income level. Cash equivalents were higher for households with higher incomes -- whose bonus values are smaller, but who are closer to the poverty threshold -- and lower for households with lower incomes -- whose bonus values are larger, but whose cash incomes are further from the poverty threshold.

Smolensky et al. [17] estimated average cash equivalent income derived from food stamps, public housing, Medicare, and Medicaid in 1970 by income class. Their calculations are shown in Table 20. Medicare and Medicaid had the largest impacts on average incomes. The four transfers together impacted primarily on lower-income households, adding from $120 to $352 annually to average incomes of the various income classes with incomes below $6000. These amounts represented a 46 percent increase in cash income of the lowest income class and around 16 percent for those with incomes of $1000-2999. The figures are averages for entire income classes and obscure wide differences among households; many will have much larger benefits and some will have none. The table also shows the four transfers valued at government cost. Average transfers valued in this manner were much higher, particularly for the lowest income households. Valued at government cost, the percentage increase in income for the lowest income class was overstated by some 40 percent.

In his comprehensive study of income and poverty, Smeeding [16] analyzed the income and anti-poverty impacts of food stamps, Medicare, Medicaid, and public housing. 53/ These in-kind transfers were valued in terms of approximations to cash equivalents. Estimated impacts on income and poverty were sizable. Households were moved higher up the income scale, as can be seen in Table 21. Some 12.4 percent of households had personal incomes below $3000 before in-kind

Table 19. Families and Persons With Income Below the Low Income Level in 1974 Before and After Addition of Annual Food Stamp Bonus Values

	With Income Below the Low Income Level Before Addition of Bonus		With Income Below the Low Income Level After Addition of Bonus	
	Number (thousands)	Percentage	Number (thousands)	Percentage
TOTAL				
Total persons.....	24,260	11.6	22,714	10.9
In families.....	19,440	10.2	17,973	9.4
Unrelated Individuals 1/	4,820	25.5	4,741	25.1
Total families.....	5,109	9.2	4,748	8.5
PURCHASED FOOD STAMPS IN 1974				
Total persons.....	9,427	55.2	7,881	46.1
In families.....	8,715	54.0	7,248	45.0
Unrelated Individuals 1/	712	74.6	633	66.3
Total families.....	2,064	52.6	1,703	43.4
PURCHASED FOOD STAMPS 12 MONTHS OF 1974				
Total persons.....	5,863	70.6	4,643	55.9
In families.....	5,412	69.8	4,260	54.9
Unrelated Individuals 1/	451	82.2	383	69.7
Total families.....	1,255	67.1	974	52.1

SOURCE: Coder [4], Table 3.

1/Under the "Total" heading includes all unrelated individuals.
Under the "Purchased Food Stamps" heading refers to primary individuals living alone.

Table 20. In-Kind Transfers and Income, 1970: Smolensky Study

Income Class	Average Cash Equivalent Income From: Food Stamps	Public Housing	Medicare	Medicaid	Total	Four Transfers at Government Cost	Average Cash Income	In-Kind as a Percentage of Cash Income: Cash Equiv.	In-Kind as a Percentage of Cash Income: Government Cost
$0-$999	$ 9	$ 2	$ 62	$ 47	$120	$222	$ 260	46%	85%
$1-$1999	30	10	123	110	273	433	1508	18	29
$2-$2999	50	11	138	153	352	453	2461	14	18
$3-$3999	53	11	117	114	295	357	3468	9	10
$4-$4999	45	10	104	133	292	343	4471	7	8
$5-$5999	34	7	81	135	257	275	5445	5	5
$6-$6999	24	4	66	59	156	156	6452	2	2
$7-$7999	17	2	55	33	107	107	7458	1	1
$8-$9999	16	—	46	26	88	88	8920	1	1
$10-$14,999	3	—	35	24	62	62	12,120	1	1
$15-$24,999	--	—	37	11	48	48	18,410	--	—
$25,000+	—	—	50	—	50	50	35,755	—	—

Source: Smolensky [17], selections and derivations from Table 3, p. 21, and Table 5, p. 35.

Table 21. Personal Income Distribution By Income Class, Pre and Post Four In-Kind Transfers, 1972: Smeeding Study

Upper Bound of Income Brackets	Percentage of Households	
	Pre In-Kind Transfers	Post In-Kind Transfers
$1,000	2.0%	1.3%
2,000	6.5	4.1
3,000	12.4	10.1
4,000	18.0	16.3
5,000	24.4	22.9
6,000	30.8	29.6
7,500	40.8	39.8
10,000	56.5	55.9
12,500	70.2	69.8
15,000	80.6	80.4
20,000	91.7	91.6

Source: Smeeding [16], Table 9-2, p. 315.

tranfers, but only 10.1 percent had such incomes after receipt of these transfers. The Gini coefficient was reduced from .3614 to .3522. 54/

Smeeding's estimates of the anti-poverty impacts of the four transfers are summarized in Table 22. The number of poor households was reduced by 2.8 million, or 28 percent, in 1972. The poverty gap declined by $3.5 billion, or 29 percent, and the mean poverty gap by $35. These data, as well as those of Smolensky, Coe, and Coder, point to a significant reduction in poverty if in-kind transfers, valued at their cash equivalents, are included in household income.

Table 22. Changes in Poverty Counts and Gaps As A Result of Four In-Kind Transfers, 1972: Smeeding Study

	Absolute Change	Percentage Change
Number of Poor Households	- 2.8 million	- 28 percent
Poverty Gap	- $3.5 billion	- 29 percent
Mean Poverty Gap	- $35	- 3 percent

Source: Smeeding [16], Table 8-7, p. 291, and Table 8-8, p. 292.

IMPACTS OF CERTAIN IN-KIND PROGRAMS ACROSS STATES

How in-kind income, and particularly in-kind transfers, affect states may be of interest to policymakers for several reasons. Policymakers may want to evaluate whether in-kind programs satisfy equity criteria in the light of differential state-by-state impacts. In addition, any change in income definitions -- such as the addition of in-kind income -- will affect state shares under grant-in-aid formulas that allocate Federal funds based in part on state incomes. This latter concern, applied to the Title I programs, in fact led to the study of the Measurement of Poverty of which this paper is a part.

That in-kind transfers do affect states differentially is clear. The primary reasons for differential impacts are also clear. They include: (a) differences in in-kind transfer programs across states in terms of eligibility criteria and benefits (AFDC, Medicaid, and public housing are prime examples); (b) differences in participation among eligible households across states; and (c) different economic and demographic makeup of state populations, such as numbers of low-income and/or aged persons and pre-transfer income levels.

Precisely how low-income or poverty households are differentially affected across states by the receipt of in-kind transfers is, unfortunately, not known. It is not even directly measurable at present. Such a measurement would require information on income and transfers received, singly and in combination, for households on a state by state basis. These data do not exist. Completion of the state by state Survey of Income and Education (the so-called 822a Survey) will permit the investigation of the impacts of in-kind income across states. These investigations will not be available for several years under the best of circumstances.

Since state by state impacts arising from in-kind transfers cannot be measured directly at present, this section provides two types of analyses that cast some light on the potential for differential impacts across states. First, whatever data are available at the state level for the four in-kind transfers highlighted in this paper are presented. It is shown that numbers of recipients and outlays vary sharply across states, in absolute terms and as a percentage of state populations. Limited evidence for one of these transfers -- namely, food stamps -- shows that low-income populations are differentially affected across states. Estimated proportions of persons in poverty pre-transfer that are removed from poverty after the receipt of food stamp bonuses vary widely across states. Moreover, one could imagine that were multiple transfers measurable at the household level, differential state impacts would be even greater for bundles of programs than they appear to be for any single program.

Second, the share of program transfers going to each state for each in-kind program was explained by a number of independent variables. It was presumed that the closer the relationship between the share of transfers and the state's share of the U.S. poverty population, the less would be the differential impact across states of adding in-kind transfers into income. The closeness of this relationship varied considerably across programs.

IN-KIND TRANSFERS BY STATE

Food Stamps

Food stamps is a national program in which eligibility criteria and benefit schedules are constant across virtually all states. Precisely because eligibility and benefit structures are constant, differing incomes across states will lead to differing numbers of eligible households and to differing average and total bonus values. States with lower household incomes will receive more transfers from the food stamp program, ceteris paribus, because more households will be eligible and because bonus values to recipient households will be higher.

This expected differential impact across states may be moderated or heightened by two other factors. First is the categorical eligibility of public assistance recipients (or ineligibility of SSI recipients in the five cash-out states). Second is the variance in participation rates among eligible households across states. Estimated participation rates in 1974 across states were found to vary sharply -- from 12 percent in North Dakota to 78 percent in the District of Columbia. 55/ The states with the five lowest estimated participation rates, after North Dakota, were Kansas, South Dakota, Wyoming, Nebraska, and Idaho. Those with the five highest participation rates, after Washington, D. C., were California, Illinois, Rhode Island, New Jersey, and Michigan.

Participation and bonus values in May 1975 are shown for each state in Table 23. For the U.S. as a whole (excluding territories and possessions), 18 million persons participated in the program and bonus values totaled $385 million, providing an average $22 bonus or transfer to each recipient. The table's highlights are that:

-- Participation (column 3) varied sharply across states, from 1,561,000 persons in California to 11,000 in Wyoming. The size of the state population was obviously the primary determinant of these differences.

-- Total transfers, or bonus values (column 5), showed a similar, though not identical, state by state pattern. California and Wyoming again accounted for the highest and lowest transfers.

-- Some states, however, do change rankings when bonus values are viewed rather than participation. Perhaps the most dramatic single example is New York which accounted for 8 percent of U.S. participants (column 4), but only 5 percent of U.S. bonus values (column 6). Generally, states with higher incomes will receive a share of bonus values smaller than their share of participants and lower income states a higher share. Among groups of states, those in the Northeast and in the Southeast showed the greatest shifts: Northeastern States had 28 percent of participants and 23 percent of bonuses while Southeastern States had 23 percent of participants but 26 percent of bonuses.

Table 23. Food Stamps: Participation and Bonus Values by State, May 1975

Region by State	(1) Participation (Persons in 000) Public Assistance	(2) Non-Public 1/ Assistance	(3) Total	(4) Proportion of U.S. Total	(5) Bonus Value ($ in millions)	(6) Bonus Value: Proportion of U.S. Total	(7) Bonus Value Per Recip. ($)
Connecticut	96	74	170	.01	3.1	.01	$18
Delaware	17	14	30	.00	.6	.00	20
Wash., D.C.	89	43	132	.01	2.8	.01	22
Maine	40	117	158	.01	3.4	.01	22
Maryland	184	92	275	.02	6.7	.02	24
Massachusetts	298	274	572	.03	10.3	.03	18
New Hampshire	21	48	69	.00	1.5	.00	22
New Jersey	327	222	549	.03	12.0	.03	22
New York	1,154	262	1,416	.08	18.6	.05	13
Pennsylvania	559	354	913	.05	16.2	.04	18
Rhode Island	56	40	96	.01	1.6	.00	17
Vermont	21	28	49	.00	.9	.00	18
Virginia	101	197	298	.02	6.2	.02	21
West Virginia	112	138	250	.01	4.5	.01	18
NORTHEAST	3,075	1,903	4,979	.28	88.4	.23	$20
Alabama	96	304	400	.02	9.3	.02	23
Florida	168	599	768	.04	20.9	.05	27
Georgia	196	382	578	.03	13.0	.03	22
Kentucky	100	448	548	.03	13.2	.03	24
Mississippi	89	307	396	.02	9.4	.02	24
North Carolina	89	505	594	.03	13.3	.03	22
South Carolina	67	365	432	.02	10.7	.03	25
Tennessee	102	335	437	.02	10.7	.03	25
SOUTHEAST	907	3,245	4,152	.23	100.5	.26	$24
Illinois	806	208	1,014	.06	22.5	.06	22
Indiana	106	154	259	.01	5.7	.01	22
Iowa	60	60	119	.01	2.3	.01	20
Kansas	38	26	64	.00	1.1	.00	18
Michigan	500	205	706	.04	11.5	.03	16
Minnesota	87	102	189	.01	3.7	.01	19
Missouri	159	158	316	.02	7.4	.02	23
Nebraska	22	35	57	.00	1.3	.00	22
Ohio	523	426	949	.05	23.2	.06	24
Wisconsin	91	75	166	.01	2.8	.01	17
MIDWEST	2,391	1,448	3,839	.21	81.6	.21	$21
Alaska	4	12	16	.00	.6	.00	37
Arizona	38	137	175	.01	4.1	.01	23
California	1,054	507	1,561	.09	32.6	.08	21
Hawaii	53	30	83	.00	2.2	.01	27
Idaho	16	30	46	.00	1.1	.00	24
Nevada	8	27	36	.00	1.0	.00	27
Oregon	91	124	215	.01	5.1	.01	24
Washington	126	131	257	.01	6.0	.02	23
WESTERN	1,391	999	2,390	.13	52.7	.14	$22
Arkansas	61	214	275	.02	6.5	.02	24
Colorado	77	91	168	.01	4.2	.01	25
Louisiana	170	340	510	.03	12.2	.03	24
Montana	14	26	40	.00	1.0	.00	24
New Mexico	44	107	152	.01	3.7	.01	25
North Dakota	5	14	19	.00	.4	.00	20
Oklahoma	58	128	186	.01	3.4	.01	18
South Dakota	12	20	32	.00	.6	.00	20
Texas	272	919	1,190	.07	28.2	.07	24
Utah	33	18	51	.00	1.0	.00	20
Wyoming	4	7	11	.00	.3	.00	22
WEST-CENTRAL	750	1,884	2,634	.15	61.5	.16	$23
U.S. TOTAL	8,514	9,479	17,994	1.00	384.7	1.00	$22

SOURCE: U.S. Department of Agriculture, Food and Nutrition Service, Food Stamp Program — Statistical Summary of Operations, May 1975 preliminary report (July 31, 1975), selections and derivations, p. 1.

1/Includes SSI recipients.

— This redistribution from higher income to lower income states is also illustrated by average bonus values per recipient across states (column 7). Bonus values per recipient were generally higher in lower income states. 56/ In the Southeast they averaged $24 and in the Northeast $20; other regions had average bonuses of $21 to $23. New York had the lowest bonus per recipient, averaging $13.

— The share of total food stamp participants accounted for by public assistance households (not including SSI recipients) varied widely across states (columns 1 and 2). In the Northeastern, Midwestern, and Western regions public assistance households outnumbered non-public assistance households, accounting for 61 percent of recipients. In the West-Central and especially the Southeastern regions, non-public assistance households predominated, accounting for 76 percent of recipients. Earlier sections of this paper have shown that the probability of multiple program receipt is higher for public assistance households, and thus, the above regional numbers may indicate, in a rough way, the directions of the impact of multiple program receipt across regions.

Impacts of food stamps on poverty counts across states cannot be even hinted at from the above data. This paper has stressed before that pre-food stamp incomes in conjunction with bonus values must be known for each household in order to derive exact changes in poverty resulting from food stamps. These data do not exist on a state by state basis. Very rough estimates of these state by state impacts were made for the Study of the Measurement of Poverty by MacDonald [8]. The MacDonald estimates were based on 1970 state income distributions, adjusted to 1974 levels, and estimates of 1974 bonus values received by various income classes.

MacDonald found 48 percent of poor persons receiving food stamps to be removed from poverty by the receipt of food stamp bonuses (valued at government cost). Among all poor persons, that is, among those receiving and not receiving food stamps, 16 percent were removed from poverty by food stamp bonuses. Estimated state by state reductions in poverty, as shown in Table 24, varied from 64 percent in the District of Columbia and 32 percent in New Jersey to less than one percent in Kansas, New Hampshire, and North Dakota. These results apparently reflect differences in food stamp participation by poor households across states and in pre-food stamp income levels of poor households. Among states with relatively low poverty reduction impacts from food stamps, the Mountain West and Midwest States predominated.

These U.S. and state by state poverty reduction estimates are biased upward by the methodologies utilized in the estimates. Moreover, the relative impacts across states may also be subject to considerable error. Utilizing data from the August 1974 CPS food stamp supplement, the percentage reduction in poor food stamp recipients as a result of food stamp bonuses was estimated for 12 states for whom food stamp sample households were fairly sizable. These CPS data yield only the roughest estimates under a set of simplified assumptions and may themselves be subject to considerable error as to relative impacts across

Table 24. Estimated Percentage Reduction In Persons In Poverty As A Result of Food Stamp Transfers, By State, 1974

State	% Reduction	State	% Reduction
Alabama	8.8	New Hampshire	0.3
Alaska	27.6	New Jersey	32.5
Arizona	6.7	New Mexico	29.6
Arkansas	14.6	New York	14.7
California	20.4	North Carolina	5.3
Colorado	10.9	North Dakota	0.9
Connecticut	24.5	Ohio	31.4
Delaware	3.9	Oklahoma	3.6
District of Columbia	64.2	Oregon	21.1
Florida	10.9	Pennsylvania	18.0
Georgia	9.0	Rhode Island	26.1
Hawaii	55.9	South Carolina	26.0
Idaho	5.1	South Dakota	1.7
Illinois	29.6	Tennessee	11.6
Indiana	6.1	Texas	18.7
Iowa	5.6	Utah	3.7
Kansas	0.7	Vermont	24.0
Kentucky	26.5	Virginia	3.9
Louisiana	23.0	Washington	31.8
Maine	16.7	West Virginia	6.2
Maryland	31.1	Wisconsin	2.6
Massachusetts	1.9	Wyoming	2.4
Michigan	25.0		
Minnesota	7.7	U.S. Total	16.3
Mississippi	14.4		
Missouri	8.0		
Montana	6.6		
Nebraska	2.0		
Nevada	9.7		

SOURCE: MacDonald [8], Table 7, pp. 25-26.

states. Nevertheless, the differences between the MacDonald and the CPS estimates are striking. The ranking of the 12 states from greatest to least percentage reduction in poverty among food stamp recipients is shown in Table 25. The wide disparities are obvious. A definitive analysis of the state by state impacts of food stamp bonus values on poverty counts must clearly await the completion of the 822a Survey of Income and Education.

Table 25. Percentage Reduction In Poor Food Stamp Recipients After Receipt of Food Stamp Bonus Values: Ranking from Greatest to Least For Selected States

	August 1974 CPS Estimates	MacDonald Estimates
Florida	6	8
Georgia	3	11
Illinois	11	2
Louisiana	12	4
Michigan	2	6
Missouri	8	10
New Jersey	1	3
New York	5	9
North Carolina	9	12
Ohio	7	1
Pennsylvania	4	7
Texas	10	5

Public Housing

Low-rent public housing is a local program with widely differing impacts across areas. The availability of public housing units varies from area to area as do eligibility criteria and net tenant benefits.

Estimates of the number of households occupying low-rent public housing by income class and by state are shown in Table 26 for June 1974. For the United States as a whole, over one million households were occupying such units and an estimated 77 percent of occupants had incomes below $5000 annually. Numbers of tenant households varied from 326 in Wyoming to over 114 thousand in New York.

Table 27 shows tenant households as a percentage of all households in the respective income classes and states. Proportions of low-income households benefiting from public housing varied sharply across states. Highlights of Table 27 are that:

- Occupants formed a very small proportion of all households in the United States — 1.6 percent — and a somewhat larger, though still small, proportion of households with incomes below $5000 -- 4.4 percent.

- The proportion of households that were public housing occupants varied across states, from 0.3 percent in Wyoming to 3.6 percent in Alabama, and 4.0 percent in the District of Columbia.

- Among households with incomes below $5000, the proportion in low-rent public housing varied from 0.6 percent in Wyoming to 11.5 percent in the District of Columbia.

Table 26. Low-Rent Public Housing Occupants By Income Class By State, June 1974 1/

State	Annual Income Of: Under $1000	$1000-$1999	$2000-$2999	$3000-$3999	$4000-$4999	$5000-$5999	$6000-$6999	Total	Under $5000
Alabama	929	12,188	8,004	6,947	4,545	2,251	1,024	37,062	32,613
Alaska	0	37	126	160	115	63	104	1,026	438
Arizona	17	1,814	1,586	927	480	265	149	5,366	4,824
Arkansas	123	4,287	2,455	2,015	1,330	707	240	11,419	10,210
California	188	2,550	19,103	12,618	9,714	6,416	4,388	60,878	44,173
Colorado	14	1,343	1,519	995	571	416	352	5,706	4,442
Connecticut	84	2,444	3,485	2,995	2,165	1,584	1,353	16,268	11,173
Delaware	12	591	712	309	185	282	167	2,410	1,809
District of Columbia	61	2,490	2,566	1,899	1,059	732	609	10,613	8,075
Florida	690	9,576	7,388	4,889	3,920	2,619	1,406	32,051	26,463
Georgia	940	14,539	11,951	6,930	5,112	3,591	1,837	47,344	39,472
Hawaii	7	494	927	781	613	485	449	4,830	2,822
Idaho	6	352	366	129	51	20	9	938	904
Illinois	327	13,750	14,282	10,984	7,171	5,025	3,820	67,893	49,514
Indiana	339	3,270	3,675	1,775	1,234	954	849	13,881	10,293
Iowa	20	1,093	1,009	474	218	123	101	3,157	2,814
Kansas	38	1,456	1,666	991	693	386	252	5,893	4,844
Kentucky	216	6,049	5,076	3,293	2,278	1,459	819	20,278	16,912
Louisiana	1,654	8,624	6,780	4,856	2,588	1,104	530	26,589	24,502
Maine	9	354	741	540	333	324	219	2,780	1,977
Maryland	64	4,151	4,975	2,695	1,311	1,265	1,214	17,775	13,196
Massachusetts	93	2,739	12,271	6,152	4,617	2,745	1,885	33,526	25,872
Michigan	145	5,632	6,539	3,887	2,126	1,508	991	23,219	18,329
Minnesota	132	5,316	6,331	2,818	1,339	652	385	17,951	15,936
Mississippi	658	2,763	2,046	1,766	1,408	656	346	10,057	8,641
Missouri	662	3,869	4,232	2,128	1,615	1,379	932	16,526	12,506
Montana	0	279	520	311	197	131	74	1,602	1,307
Nebraska	70	3,105	2,611	1,314	511	270	176	8,253	7,611
Nevada	13	488	900	463	362	460	393	3,371	2,226
New Hampshire	11	499	860	681	565	499	324	3,774	2,616
New Jersey	180	4,556	7,984	9,051	5,254	4,683	3,795	43,406	27,025
New Mexico	55	1,140	1,270	795	648	252	135	4,425	3,908
New York	395	14,029	28,765	19,267	14,632	11,140	8,376	114,165	77,088
North Carolina	733	6,189	6,014	3,494	3,728	3,073	1,876	28,407	20,158
North Dakota	0	462	937	458	292	170	122	2,616	2,149
Ohio	239	15,940	12,755	5,844	3,497	2,697	2,057	46,311	38,275
Oklahoma	37	4,119	3,060	1,964	886	320	91	10,649	10,066
Oregon	24	1,820	2,887	1,518	854	519	259	8,172	7,103
Pennsylvania	266	11,550	14,638	13,063	9,217	5,102	3,957	66,032	48,734
Rhode Island	35	1,929	2,425	1,274	925	685	564	8,498	6,588
South Carolina	847	2,793	1,828	1,344	1,415	716	391	9,674	8,227
South Dakota	15	665	702	463	180	112	45	2,234	2,025
Tennessee	1,046	13,947	6,675	4,274	3,622	2,226	1,114	34,218	29,564
Texas	726	20,561	11,731	7,153	4,469	2,356	1,010	49,021	44,640
Utah	na	na	na	na	na	na	na	na	na
Vermont	0	146	333	231	194	144	95	1,246	904
Virginia	232	3,074	3,960	3,720	1,934	1,594	1,028	16,816	12,920
Washington	58	3,456	5,460	3,684	1,803	937	513	16,716	14,461
West Virginia	101	1,488	1,320	701	514	249	126	4,655	4,124
Wisconsin	42	2,037	3,522	1,665	793	458	382	10,019	8,059
Wyoming	0	25	90	50	30	45	40	326	195
U. S. Total	10,394	249,467	259,862	166,312	114,339	72,761	51,972	1,039,447	800,374

SOURCE: Unpublished data from HUD.

1/ HUD data show income distributions of those households re-examined for continued occupancy during September 1972 - October 1973. It was assumed that these income distributions were valid for all households occupying low-rent public housing in June 1974.

Table 27. Percentage of Households Occupying Low-Rent Public Housing By Income Class By State, June 1974

State	Under $1000	$1000-$1999	$2000-$2999	$3000-$3999	$4000-$4999	$5000-$5999	$6000-$6999	Total	Under $5000
Alabama	1.1	11.6	10.1	9.1	6.4	3.1	1.4	3.6	7.8
Alaska	0	1.4	4.8	5.7	3.7	1.6	2.6	1.3	3.1
Arizona	0.1	5.3	4.9	2.9	1.5	0.8	0.4	1.0	3.1
Arkansas	0.2	5.4	4.1	3.7	2.7	1.5	0.5	1.8	3.5
California	0.1	0.7	4.8	3.6	2.9	1.8	1.2	0.9	2.6
Colorado	0.1	2.9	3.9	2.5	1.4	1.0	0.8	0.8	2.3
Connecticut	0.3	6.5	10.2	8.6	6.1	3.9	3.0	1.7	6.5
Delaware	0.2	7.3	10.0	3.9	2.4	3.0	1.7	1.5	4.8
District of Columbia	0.4	19.7	20.0	13.7	6.6	4.1	3.1	4.0	11.5
Florida	0.5	5.6	4.4	2.9	2.4	1.6	0.9	1.4	3.3
Georgia	1.0	13.2	13.7	7.8	5.7	3.8	2.0	3.4	8.4
Hawaii	0.1	6.7	13.1	10.0	7.1	4.4	3.8	2.4	7.4
Idaho	0.1	2.1	2.4	0.9	0.4	0.1	0.1	0.4	1.3
Illinois	0.2	7.0	10.3	6.9	4.6	2.9	2.1	1.9	6.0
Indiana	0.5	3.4	4.5	2.2	1.5	1.1	0.9	0.9	2.6
Iowa	0.1	1.6	1.6	0.8	0.4	0.2	0.2	0.4	1.0
Kansas	0.1	2.6	3.5	2.1	1.5	0.8	0.5	0.8	2.1
Kentucky	0.3	6.0	6.4	4.5	3.5	2.1	1.2	2.1	4.3
Louisiana	2.0	7.6	8.3	6.4	3.8	1.6	0.8	2.5	5.8
Maine	0.1	1.6	3.6	2.7	1.6	1.3	0.9	0.9	2.1
Maryland	0.2	7.9	10.6	5.6	2.5	2.2	1.9	1.5	5.5
Massachusetts	0.2	3.0	13.5	7.5	5.6	2.9	2.0	1.9	6.3
Michigan	0.1	3.9	5.3	3.4	1.9	1.3	0.8	0.9	3.1
Minnesota	0.3	6.9	9.1	4.3	2.2	1.0	0.6	1.6	5.0
Mississippi	0.9	3.5	3.6	3.3	3.0	1.4	0.8	1.6	2.8
Missouri	0.8	2.9	4.0	2.2	1.8	1.5	1.0	1.1	2.5
Montana	0	1.6	3.3	2.2	1.4	0.9	0.5	0.7	1.9
Nebraska	0.3	8.5	7.7	4.2	1.7	0.8	0.5	1.7	4.9
Nevada	0.2	6.7	12.6	5.9	4.6	4.9	4.0	2.1	6.2
New Hampshire	0.1	3.7	7.5	5.9	4.5	3.5	2.2	1.7	4.6
New Jersey	0.2	4.7	8.7	9.8	5.5	4.4	3.4	2.0	6.0
New Mexico	0.3	5.0	6.5	3.9	3.3	1.2	0.6	1.5	3.8
New York	0.2	4.3	9.4	6.5	5.0	3.4	2.4	1.9	5.2
North Carolina	0.7	5.3	6.1	3.3	3.4	2.6	1.7	1.9	3.8
North Dakota	0	3.4	6.9	3.2	2.1	1.2	0.9	1.4	3.4
Ohio	0.2	8.0	7.8	3.8	2.3	1.7	1.1	1.4	4.8
Oklahoma	0.1	4.5	4.2	3.1	1.5	0.5	0.2	1.2	3.0
Oregon	0.1	3.8	6.4	3.7	2.2	1.3	0.6	1.2	3.5
Pennsylvania	0.2	5.1	7.4	6.6	4.8	2.3	1.6	1.8	5.0
Rhode Island	0.2	10.4	15.5	8.5	6.0	3.9	3.1	2.9	8.4
South Carolina	1.4	4.9	3.9	2.6	2.7	1.3	0.7	1.3	3.1
South Dakota	0.1	3.6	4.1	2.9	1.2	0.7	0.3	1.1	2.6
Tennessee	1.2	12.5	7.8	4.8	4.1	2.5	1.3	2.8	6.4
Texas	0.4	7.6	5.1	3.1	2.0	1.0	0.4	1.4	3.9
Utah	na	na	na	na	na	na	na	na	na
Vermont	0	1.6	4.0	3.0	2.5	1.6	1.0	0.9	2.4
Virginia	0.3	3.8	5.3	4.6	2.3	1.7	1.1	1.2	3.3
Washington	0.1	4.8	8.7	6.4	3.3	1.7	0.8	1.5	5.0
West Virginia	0.2	2.7	3.1	1.6	1.4	0.7	0.3	0.8	1.9
Wisconsin	0.1	2.5	4.6	2.3	1.2	0.7	0.5	0.8	2.3
Wyoming	0	0.4	1.3	0.8	0.5	0.7	0.5	0.3	0.6
U.S. Total	0.3	5.9	7.0	4.6	3.3	1.9	1.3	1.6	4.4

SOURCE: See Table 26. Population information used to calculate percentages is from: U.S. Bureau of the Census, Census of the Population, Detailed Characteristics, Final Report PC(1)-D1-52, Washington, D.C

-- Among households with incomes below $3000, the proportion in low-rent public housing varied from about 1 percent in Wyoming to around 18 percent in the District of Columbia. For Rhode Island and Arkansas, the states with the highest proportions of occupants with incomes below $3000 after D. C., 10-12 percent of households were in public housing.

Medicaid

Eligibility for, and benefits from, Medicaid vary widely across states. Many of these differences across states have been mentioned in earlier sections. Most important are differences in eligible households, which reflect primarily: (a) whether states have a program for the medically needy -- 25 states and the District of Columbia have such programs; (b) the size of the AFDC, and to a lesser degree, the SSI recipient population which is categorically eligible for Medicaid; and (c) income limits for AFDC which are used in Medicaid income tests and the size of the low-income population. Average benefits paid to eligibles also differ since the scope of services provided under Medicaid varies across states. 57/ Moreover, utilization of health care services will differ with demographic characteristics of eligibles and with varying access to health care. Health care costs will differ as well. The interaction of these many factors will influence how Medicaid varies across states.

Various data on outlays and recipients for fiscal year 1973 are shown in Table 28 for each state. Highlights of the table are that:

-- The size of the recipient population (column 1) varied from 3,009,000 in California to 6,000 in Alaska. Arizona had no Medicaid program. Total recipients, of course, reflected total state populations.

-- The ratio of recipients to population, however, did vary fairly widely across states, from .19 in the District of Columbia to .02 in Alaska (column 3). All states with above average ratios had medically needy programs (column 10) except for Mississippi.

-- Outlays (column 4) varied from $2.3 billion in New York to $3 million in Alaska. New York accounted for 26 percent -- and New York, California, and Illinois accounted for 44 percent -- of all Medicaid outlays (column 5). Outlays, of course, reflected numbers of recipients, but the relationship was far from proportional.

-- Outlays per recipient (column 6) varied sharply, from $811 in New York to $185 in West Virginia.

-- States with medically needy programs in general had lower proportions of Medicaid recipients who also received cash public assistance (column 7). These proportions varied from 100 percent in Alaska to 62 percent in Massachusetts. Public assistance recipients accounted for somewhat lower proportions of Medicaid outlays (column 8) -- in Massachusetts some 37 percent.

Table 28. Medicaid Recipients and Outlays, By State, Fiscal Year 1973

State	(1) Recipients (Persons in 000)	(2) Percentage of U.S. Total	(3) Recipients/ Population 1/	(4) Outlays ($ in millions)	(5) Percentage of U.S. Total
Alabama	259	1.3	.07	80	0.9
Alaska 3/	6	*	.02	3	*
Arizona 4/	—	—	—	—	—
Arkansas	109	0.6	.06	46	0.5
California	3,009	15.1	.15	1,088	12.6
Colorado	152	0.8	.07	74	0.9
Connecticut	178	0.9	.06	119	1.4
Delaware	48	0.2	.08	11	0.1
District of Columbia	140	0.7	.19	63	0.7
Florida	311	1.6	.04	98	1.1
Georgia	445	2.2	.09	177	2.0
Hawaii	80	0.4	.10	31	0.4
Idaho	34	0.2	.04	16	0.2
Illinois	1,226	6.1	.11	480	5.6
Indiana	224	1.1	.04	126	1.5
Iowa	124	0.6	.04	37	0.4
Kansas	148	0.7	.07	74	0.9
Kentucky	341	1.7	.10	74	0.9
Louisiana	253	1.3	.07	81	0.9
Maine	89	0.4	.09	43	0.5
Maryland	415	2.1	.10	171	2.0
Massachusetts	728	3.6	.13	380	4.4
Michigan	749	3.7	.08	427	4.9
Minnesota	241	1.2	.06	182	2.1
Mississippi	254	1.3	.11	56	0.6
Missouri	323	1.6	.07	68	0.8
Montana	36	0.2	.05	17	0.2
Nebraska	69	0.3	.05	41	0.5
Nevada	21	0.1	.04	12	0.1
New Hampshire	41	0.2	.05	11	0.1
New Jersey	533	2.7	.07	249	2.9
New Mexico	65	0.3	.06	20	0.2
New York	2,786	13.9	.15	2,261	26.2
North Carolina	293	1.5	.06	108	1.3
North Dakota	28	0.1	.04	15	0.2
Ohio	578	2.9	.05	221	2.6
Oklahoma	224	1.1	.09	115	1.3
Oregon	131	0.7	.06	32	0.4
Pennsylvania	1,281	6.4	.11	406	4.7
Rhode Island	108	0.5	.11	58	0.7
South Carolina	165	0.8	.06	45	0.5
South Dakota	27	0.1	.04	15	0.2
Tennessee	217	1.1	.05	69	0.8
Texas	672	3.4	.06	336	3.9
Utah	60	0.3	.05	25	0.3
Vermont	43	0.2	.09	24	0.3
Virginia	278	1.4	.06	107	1.2
Washington	292	1.5	.08	139	1.6
West Virginia	141	0.7	.08	26	0.3
Wisconsin	305	1.5	.07	184	2.1
Wyoming	9	*	.03	4	*
Puerto Rico	1,689	8.4	na	95	1.1
Virgin Islands	21	0.1	na	2	*
U.S. Total	19,999	100.0	.10	8,640	100.0

* Less than .05 percent

Table 28. Continued

State	(6) Outlays per Recipient ($)	(7) Public Assist. Recipients—% Of: Total Recipients	(8) Public Assist. Recipients—% Of: Total Outlays	(9) Vendor Pmt Per AFDC 2/ Family ($)	(10) Medically Needy Program
Alabama	308	96	73	393	
Alaska 3/	571	100	100	na	
Arizona 4/	---	---	---	---	
Arkansas	417	91	56	244	
California	362	85	69	877	X
Colorado	487	77	88	497	
Connecticut	668	76	46	760	X
Delaware	233	94	72	535	
District of Columbia	450	66	61	812	X
Florida	314	93	58	395	
Georgia	399	95	74	532	
Hawaii	382	88	60	794	X
Idaho	469	89	62	787	
Illinois	392	85	65	1,054	X
Indiana	561	92	61	795	
Iowa	298	91	69	751	
Kansas	496	78	77	813	X
Kentucky	216	65	63	467	X
Louisiana	320	95	68	278	
Maine	487	94	78	444	
Maryland	412	68	60	956	X
Massachusetts	523	62	37	800	X
Michigan	570	82	58	811	X
Minnesota	755	73	53	997	X
Mississippi	219	84	75	168	
Missouri	211	86	74	385	
Montana	473	83	52	756	X
Nebraska	596	78	53	731	X
Nevada	544	89	55	845	
New Hampshire	283	79	72	630	X
New Jersey	467	87	60	891	
New Mexico	309	96	84	487	
New York	811	70	38	1,403	X
North Carolina	368	76	60	524	X
North Dakota	536	81	49	835	X
Ohio	383	95	93	622	
Oklahoma	512	82	64	523	X
Oregon	241	75	65	477	
Pennsylvania	317	66	41	603	X
Rhode Island	535	66	48	896	X
South Carolina	274	95	64	355	
South Dakota	544	82	48	522	
Tennessee	318	96	73	336	
Texas	500	92	67	772	
Utah	416	70	77	624	X
Vermont	562	69	42	690	X
Virginia	384	72	56	619	X
Washington	476	77	59	618	X
West Virginia	185	95	97	955	X
Wisconsin	605	67	42	1,038	X
Wyoming	426	97	83	438	
Puerto Rico	56	11	12	170	
Virgin Islands	75	10	11	146	
U.S. Total	432	74	55	770	

* Less than .05 percent.

Source: Unless noted, data are from: DHEW, SRS, National Center for Social Statistics, Numbers of Recipients and Amounts of Payments Under Medicaid, 1973, Advance Copy, August 1975, Table 1.

1/ Population data are from: Bureau of Census, Current Population Reports, Estimates of the Population of Counties, July 1, 1971 and 1972, Series P-25, No. 517, May 1974 and Estimates of the Population of States With Components of Change, 1970 to 1973, Series P-25, No. 520, July 1974.

2/ Subcommittee On Fiscal Policy [20], Table 16, p. 30.

3/ Alaska entered the program in September, 1972.

4/ Arizona entered the program in 1975.

-- Vendor payments per AFDC family during fiscal year 1973 (column 9) varied from $1403 in New York to $168 in Mississippi.

Whichever of these measures one uses, the differential impacts of Medicaid across states are considerable. Medicaid incidence and outlays per recipient show wide variations. Differential impacts on poverty across states are unknown and indeed are not currently measurable.

Medicare

Medicare is a Federal program for the aged and disabled eligible for Social Security or Railroad Retirement benefits. As such, enrollees will depend largely on the numbers of aged, and to a lesser degree the disabled, within each state. Outlays across states will be influenced primarily by numbers of enrollees, but will also reflect differences in utilization of health services and in medical costs.

Data on Medicare enrollees and reimbursements in 1972 are shown in Table 29 for each state. Highlights of these data are that:

-- Enrollees (column 1) varied from 1,989,000 in New York to 7,000 in Alaska. Enrollees as a percent of each state's population (column 3) varied from 15 percent in Florida to 2 percent in Alaska, presumably reflecting differences in aged persons relative to total populations across states.

-- Total reimbursements (column 4) varied from $1 billion in New York to $3 million in Alaska. New York and California accounted for 24 percent of total Medicare reimbursements (column 5).

-- Net outlays per enrollee (column 6) varied from $473 in Massachusetts to $179 in South Carolina. 58/ To some extent this reflects differences in the percentage of enrollees receiving reimbursements (column 7) which varied from 53 percent in California to 32 percent in Mississippi.

-- In addition, however, it reflected varying costs of medical care across states. An index of hospital care costs for 1972 (column 8) showed wide variations, from 138 percent of the U.S. average in Alaska to 69 percent in Mississippi, South Dakota, West Virginia, and Wyoming.

DETERMINATION OF THE STATE SHARE OF IN-KIND TRANSFERS

It is clear from the preceding discussion that the distribution of government-provided in-kind transfers varies greatly across states. Yet, to the extent the distribution of transfers can be explained by the distribution of the poverty population across states, impacts on state poverty counts from including in-kind transfers in income might be minimal. 59/ In this section, regression results bearing on the state distribution of transfers are presented.

Table 29. Medicare Enrollees and Reimbursements, By State, 1972

State	(1) Enrollees (Persons in 000)	(2) Percent of U.S. Total	(3) Enrollees/ Population 1/	(4) Reimburse-ments ($ in millions)	(5) Percent of U.S. Total	(6) Net Outlays Per Enrollee ($) 2/	(7) Percent of Enrollees Receiving Reimburse-ments 3/	(8) Hospital Cost Index 4/
Alabama	374	1.7	.10	94	1.2	222	34	79
Alaska	7	*	.02	3	*	346	38	138
Arizona	181	0.9	.09	70	0.9	336	45	116
Arkansas	252	1.2	.13	67	0.8	220	35	70
California	1,885	9.0	.09	951	11.9	457	53	137
Colorado	199	1.0	.08	74	0.9	325	48	99
Connecticut	300	1.4	.10	135	1.7	403	40	126
Delaware	47	0.2	.08	17	0.2	319	39	107
D.C.	69	0.3	.09	30	0.4	396	39	135
Florida	1,064	5.1	.15	419	5.2	346	45	94
Georgia	391	1.9	.08	111	1.4	236	40	86
Hawaii	50	0.2	.06	15	0.2	263	42	97
Idaho	73	0.4	.10	23	0.3	262	44	83
Illinois	1,120	5.3	.10	435	5.4	341	36	106
Indiana	508	2.4	.10	162	2.0	272	36	86
Iowa	360	1.7	.12	115	1.4	273	38	77
Kansas	276	1.3	.12	94	1.2	293	43	79
Kentucky	350	1.7	.11	93	1.2	219	37	75
Louisiana	322	1.5	.09	91	1.1	236	37	98
Maine	124	0.6	.12	42	0.5	287	35	85
Maryland	311	1.5	.08	121	1.5	343	37	116
Massachusetts	646	3.1	.11	336	4.2	473	40	132
Michigan	788	3.8	.09	349	4.4	396	42	109
Minnesota	425	2.0	.11	170	2.1	354	40	87
Mississippi	239	1.1	.11	65	0.8	223	32	69
Missouri	577	2.8	.12	189	2.4	280	40	85
Montana	72	0.3	.10	24	0.3	283	43	73
Nebraska	188	0.9	.12	59	0.7	267	36	81
Nevada	36	0.2	.07	16	0.2	385	45	114
New Hampshire	86	0.4	.11	28	0.4	280	40	84
New Jersey	719	3.4	.10	279	3.5	341	43	94
New Mexico	81	0.4	.08	25	0.3	261	38	98
New York	1,989	9.5	.11	1,004	12.6	458	44	125
North Carolina	445	2.1	.09	125	1.6	233	33	76
North Dakota	71	0.3	.11	25	0.3	310	44	78
Ohio	1,026	4.9	.10	360	4.5	304	38	96
Oklahoma	313	1.5	.12	99	1.2	270	44	84
Oregon	239	1.1	.11	76	1.0	273	42	100
Pennsylvania	1,311	6.3	.11	458	5.7	302	39	92
Rhode Island	108	0.5	.11	50	0.6	416	47	117
South Carolina	207	1.0	.08	47	0.6	180	35	71
South Dakota	83	0.4	.12	26	0.3	261	37	69
Tennessee	406	1.9	.10	110	1.4	223	36	79
Texas	1,055	5.0	.09	394	4.9	327	45	86
Utah	82	0.4	.07	24	0.3	239	37	95
Vermont	51	0.2	.11	20	0.3	341	45	91
Virginia	387	1.8	.08	111	1.4	239	34	80
Washington	339	1.6	.10	116	1.5	296	46	111
West Virginia	205	1.0	.12	54	0.7	214	34	69
Wisconsin	491	2.3	.11	180	2.3	320	36	88
Wyoming	32	0.2	.09	9	0.1	242	40	69
U.S. Total	20,947 5/	100.0	.10	7,991	100.0	334	41	100

* Less than .05

Source: DHEW, Social Security Administration, Office of Research and Statistics, Medicare 1972 (Section 1.1 Reimbursement By State and County), 1975.

1/ Population data for states from: U.S. Bureau of Census, Current Population Reports, Population Estimates and Projections, Estimates of the Population of Counties, July 1, 1971 and 1972, Series P-25, No. 517, May 1974. U.S. total from: U.S. Bureau of Census, Current Population Reports, Population Estimates and Projections, Estimates of the Population of States With Components of Change, 1970 to 1973, Series P-25, No. 520, July 1974.

2/ Net outlays per enrollee is the amount reimbursed divided by the number of enrollees. Reimbursements are increased by the administrative costs per enrollee (as shown in Subcommittee On Fiscal Policy [20], p. 205 and diminished by the premiums per enrollee of the Supplementary Medical Insurance program. Administrative costs less premiums totaled - $47.00 per enrollee.

3/ This number is derived from Medicare 1969 and is the number for 1969 program operations. Data for 1972 are not available.

4/ The hospital cost index is computed from data on expenses per adjusted patient day from: DHEW, Social Security Administration, Office of Research and Statistics, Medical Care Expenditures, Prices and Costs: Background Book, September 1973, p. 47.

5/ Includes 14,000 enrollees for whom residence is unknown.

In these regressions, the share of the poverty population in a state was found to be the single most important explanatory variable of a state's share of in-kind transfers for the food stamp, low-rent public housing and Medicaid programs. 60/ Estimation results are shown in Tables 30 through 32. For food stamps, the equation accounted for 91 percent of the variance in state shares of transfers (bonus values). The state share of the U.S. poverty population explained most of the distribution of food stamp transfers across states (beta coefficient = .95). The coefficient relating the two variables was 1.01; thus a one percentage point rise in the poverty population share was associated with a slightly more than one percent rise in the share of food stamp transfers. The average bonus value per recipient and the estimated participation rate among eligibles across states were also significantly and positively associated with the state share of transfers.

The number of low-rent public housing units 61/ across states was significantly and positively related to the number of families in poverty. A rise of 100 poor families across states was associated with an increase of 3-4 public housing units. About 25 percent of the variance in the number of public housing units across states was not explained by the estimated equation.

The state share of Medicaid transfers was significantly related to several variables, including the state share of U.S. public assistance recipients, the existence of a medically needy program and estimated potential eligibles for such a program, and the number of health care professionals relative to the state population. A state's share of the poverty population was not utilized in the equation in order that a state's share of public assistance recipients could be entered. The public assistance share was preferred on theoretical grounds (PA recipients are categorically eligible for Medicaid regardless of income) and performed better. Nevertheless, the two variables were closely related. A rise of one percentage point in the state share of public assistance recipients was associated with a .7 percentage point rise in the share of Medicaid transfers.

To summarize, the distribution of the three in-kind transfers across states analyzed here is related most importantly to the distribution of the poverty population across states. The differential impact on states of adding these in-kind transfers to income is thus probably less than would occur if the transfers were unrelated to state poverty levels.

Table 30. Determinants of the State Share of Food Stamp Transfers

FSHAROUT = -2.044 + 1.009 SHARPOV*** + 0.727 BVPEREC*** + 0.011 PARTRATE*
(0.046) (0.024) (0.005)

$\bar{R}^2$ = 0.912 SE = 0.6043

Where:

FSHAROUT is the share of the total U.S. program transfers or bonus values in each state for FY 1975.

SHARPOV is each state's share of the U.S. poverty population in 1969 (1970 Census data).

BVPEREC is the average bonus value per recipient in each state in June, 1975.

PARTRATE is the estimated participation rate among eligibles in the food stamp program in each state for 1974. (Estimated by Bickel and MacDonald, Participation Rates in the Food Stamp Program: Estimated Levels, by State, January 1975.)

Significance Levels: * = .05, ** = .01, *** = .005

Table 31. Determinants of Numbers of Low-Rent Public Housing Units Across States

NUMLRPH = -1065.607 + 0.038 POVPOP*** + 0.952 POPDENS
(0.003) (0.940)

$\bar{R}^2$ = 0.749 SE = 11429.507

Where:

NUMLRPH is the number of low-rent public housing units in each state in FY 1974.

POVPOP is the poverty population in each state in 1969 (as measured by the 1970 Census).

POPDENS is the population density (persons per square mile) for each state in 1970.

Significance Levels: * = .05, ** = .01, *** = .005

Table 32. Determinants of the State Share of Medicaid Transfers 1/

$$\begin{aligned} MDSHROUT = -2.515 &+ 0.697\ SHARPA^{***} + 0.304\ ACTMDND^{***} + 0.005\ HOSPCSTI \\ &\quad (0.047) \qquad\qquad (0.060) \qquad\qquad (0.005) \\ &+ 0.730\ HEALTHCR^{**} + 0.006\ PERURB \\ &\quad (0.228) \qquad\qquad (0.006) \end{aligned}$$

$\bar{R}^2 = .958$ SE = 0.4379

Where:

MDSHROUT is each state's share of total Medicaid transfers for FY 1973.

SHARPA is the share of total public assistance recipients residing in each state in June, 1973. Public assistance includes recipients of Aid to the Blind, Aid to the Permanently and Totally Disabled, Aid to Families with Dependent Children, and Old Age Assistance.

PERURB is the percentage of each state's population living in urban areas in 1970.

HEALTHCR is the percentage of each state's population employed as health care professionals or related personnel in 1970.

HOSPCSTI is an index of the cost of a patient day in a community hospital in each state in 1971.

ACTMDND identifies states with a medically needy program in FY 1973. It has a zero value for states with no program and for those with a medically needy program it is the state share of the U.S. population with incomes between the poverty threshold and 150 percent of the threshold in 1969.

Significance Levels: * = .05, ** = .01, *** = .005

1/ The regression shown here does not include New York which accounted for 26 percent of Medicaid outlays in FY 1973. When New York was included, the regression coefficients were considerably altered, predictions for most other large states were poor, only a 15 percent share for New York was predicted, and the $\bar{R}^2$ was lowered to .732. It was therefore concluded that the New York experience is so inexplicable with this model as to better be left excluded from the regression.

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FOOTNOTES TO TECHNICAL PAPER VII

1. Tax subsidies (or tax expenditures) should clearly not be considered in-kind subsidies for purposes of inclusion in income when after-tax income is measured. Even when pre-tax income is measured, the case for inclusion is not clear since families receive such subsidies only when they pay taxes and since after-tax income is the desired measure of relative well-being.

2. For some selected views on indirect benefits of in-kind income see I. Garfinkel, Is In-kind Redistribution Efficient, Institute for Research on Poverty Reprint Series, Reprint 99, University of Wisconsin-Madison; H.M. Hochman and J.D. Rodgers, "Pareto Optimal Redistribution," American Economic Review, Sept. 1969, pp. 542-57; E. Smolensky, L. Stiefel, M. Schmundt and R. Plotnick, Adding In-kind Transfers to the Personal Income and Outlay Account, Institute for Research on Poverty Discussion Papers, 199-74, University of Wisconsin-Madison; and L. Thurow, "Cash Versus In-Kind Transfers," American Economic Review, May 1974, pp. 190-195.

3. This framework of consumer sovereignty ignores "merit goods" (or paternalistic) arguments that some individuals may not be the best judges of what is in their own or their families' best interest.

4. This paper utilizes geometric representations for expository purposes. The same conclusions may be derived mathematically. Such derivation can be found in most economic theory texts, or for a particular application to in-kind transfers, see M. Schmundt, E. Smolensky, L. Stiefel [15].

5. This effect can, of course, work to lower recipient valuation relative to government cost if the government is less efficient than the private sector. Empirical evidence shows this to be the case for public housing.

6. In this discussion, impacts of in-kind subsidies on market prices are assumed to be nonexistent; that is, the in-kind subsidy may alter effective prices faced by the recipient, but not market prices faced by the population at large. Factor supplies are also assumed to be unaffected by the subsidy. Moreover, no allowance is made for the potential distaste of having to accept "welfare" or to use food stamps, for example, which identifies one as a "food stamp recipient" in public.

7. For a more detailed discussion of these conditions, and their potential applicability to alternative Federal programs, see M. Schmundt, E. Smolensky, L. Stiefel, When Do Recipients Value Transfers At Their Costs to Taxpayers?, Institute for Research on Poverty Discussion Papers, 186-73, University of Wisconsin - Madison.

8. A third class of households, ignored in this analysis since they do not receive food stamps, are those with such low preferences for food that they do not participate in the program even though they are eligible.

9. Galatin [6], Table 5, p. 299.

10. The data available to date from the 1972-73 Survey of Consumer Expenditures are not helpful in assessing cash equivalents of food stamps. It is only the first year diary information that is available and food stamp recipients can not be identified. Thus the amounts and proportions of food shown in the data below are averages of amounts for (a) food stamp recipients, (b) families eligible for food stamps, but not participating in the program (it is likely that the preferences for food of these eligible, non-participating families will be less than preferences of food stamp participants, thus making participation in the program unattractive from their perspective), and (c) families not eligible for food stamps. Thus these averages can in no way be used to make inferences about food consumption of food stamp recipients relative to food stamp allotment amounts; they are shown for informational purposes only.

Weekly Expenditures On Food At Home: July 1972-June 1973

Family Size

Gross Family Income	1		2		3		4		5	
	Weekly Amount	Amount / Income 1/	Weekly Amount	Amount / Income 1/	Weekly Amount	Amount / Income 1/	Weekly Amount	Amount / Income 1/	Weekly Amount	Amount / Income 1/
Under $3000	$ 8	28%	$15	52%	$19	66%	$23	80%	$26	90%
$3000-$3999					$24	36%	$25	37%	$27	40%
$4000-$4999							$28	32%	$27	31%
$5000-$5999										

Source: 1972-73 Consumer Expenditure Diary Survey; basic tabulations furnished by Bureau of Labor Statistics.

1/ Ratio of [weekly amounts] x 52 : [annual income at midpoints]

Food stamp monthly allotment amounts for the period July-December 1972 were as follows for the one- through the five-person household: $36, $64, $92, $112, and $132.

11. Low-rent public housing is only one of a number of housing programs providing benefits to low-income households. It was chosen for detailed discussion in this paper because it is at present the largest single such program -- accounting for about 60 percent of combined housing outlays -- and because its characteristics are unique in that the amount of housing services consumed is fixed for recipients. Other housing programs operate through private markets and allow greater choice as to the amount of housing services consumed.

12. U. S. Department of Housing and Urban Development [27], p. 126.

13. Kraft and Olsen [7], p. 11.

14. Such an approach would also limit families receiving benefits from Medicare and Medicaid to those who actually utilize health services during a specific time period. But, families who are enrolled in Medicare or eligible for Medicaid receive some benefits whether they utilize health services during a particular period or not.

15. Several qualifications to this outcome, peculiar to health insurance, will be discussed below.

16. Blechman et al. [2], pp. 53-56.

17. This is the opposite result of the current situation where price indices include weights for goods received free or at low cost by some families. Such in-kind transfers are not added into income and such transfers (e.g., food stamps and Medicaid) often provide protection against price increases.

18. Smolensky et al. [17], p. 37. It should be recalled that single program cash equivalent ratios found by Smolensky were quite high for food stamps and public housing.

19. Murray [11] provides an excellent case study of the use of utility functions in estimating cash equivalents; assumptions, derivations, parameter estimates, and differences in cash equivalents are shown for the Cobb-Douglas and generalized CES utility functions. In addition, Schmundt et al. [14], pp. 17-21, contains an interesting discussion of some of the problems of utilizing utility functions.

20. Mahoney [9], p. 120. The specifics of this approach were never described and the discussion in this paper is the author's interpretation of the "net funds released" approach.

21. It is possible that the food consumption to income ratio might be increased as a result of the food stamp program when the 1955 Agriculture Survey is used as the basis of the ratio since the program increases food consumption as well as income.

22. See Coder [4] and Table 18 of this paper.

23. Such comparisons could still be less distorted than at present depending on the incidence of these subsidies and of the relative amounts subsidized.

24. One reason for non-participation among eligible households, noted in the preceding section, is low preferences for food relative to program purchase requirements and allotment amounts. Other reasons for non-participation by some households are low bonus values relative to time and monetary costs -- so called transaction costs — of participating (bonus values fall to relatively low levels close to income eligibility limits); inability to accumulate the funds necessary to buy the stamps; welfare stigma; and lack of knowledge of the program.

25. Seagrave [15].

26. These data are from the matched March-April 1975 CPS, as shown in Coder [4] or derived from special tabulations provided by John Coder, Bureau of the Census.

27. Subcommittee On Fiscal Policy [22], p. 244.

28. Subcommittee On Fiscal Policy [22], p. 246.

29. Subcommittee On Fiscal Policy [20], p. 31.

30. Department of Housing and Urban Development [27], p. 128.

31. Department of Housing and Urban Development [27], p. 127.

32. The descriptions of Medicare and Medicaid that follow are necessarily brief. For a fuller description of their many eligibility provisions and diverse benefits the reader is referred to Subcommittee On Fiscal Policy [22].

33. Other aged persons may enroll for HI and pay monthly premiums, currently $36.

34. Subcommittee On Fiscal Policy [22], pp. 199 and 207.

35. Subcommittee On Fiscal Policy [22], p. 223.

36. Subcommittee On Fiscal Policy [22], p. 221.

37. This is true to a somewhat lesser degree for SSI recipients than for AFDC recipients. In 16 states, Medicaid benefits have been limited for some SSI recipients and in five so-called cash out states (California, Wisconsin, New York, Massachusetts, and Nevada) SSI recipients receive no food stamps.

38. U.S. Department of Health, Education, and Welfare (DHEW), Social and Rehabilitation Service (SRS), National Center for Social Statistics (NCSS) [25], Part II-A, p. 11.

39. DHEW, SRS, NCSS [24], Part I, Table II, p. 28.

40. Storey [18], p. 25.

41. DHEW, SRS, NCSS [26], Part III, p. 6.

42. Subcommittee On Fiscal Policy [21], Table 3, p. 10.

43. Subcommittee On Fiscal Policy [21], Table 16, p. 30.

44. Subcommittee On Fiscal Policy [22], p. 226.

45. Subcommittee On Fiscal Policy [22], p. 225.

46. Data were collected by the General Accounting Office from administrative records of the various programs. The study is based on a random sample of up to 350 households in each of six areas. Sites were chosen from among the 59 areas designated by the Census Bureau as low-income areas.

47. Subcommittee On Fiscal Policy [19], p. 28.

48. The CPS utilizes a rotating sample such that three-quarters of the addresses interviewed in April are also interviewed in March. Interviews from the same addresses are then checked to ensure that the same household is living at that address in both months, leaving a sample of "matched" households on which the Coder study is based.

49. This reported total bonus value is 74 percent of U.S.D.A. reported totals. Recipients of food stamps are also underreported, although it is not known by how much since U.S.D.A. does not have data on total numbers of recipients over a year. In July 1974, the CPS underreported recipients for the month by some 19 percent. It is expected that underreporting for the entire year would be somewhat higher due to greater recall problems. This underreporting will obviously bias downward the income and poverty impacts reported in the Coder study.

50. Coder [4], p. 11.

51. Coe et al. [5], p. 3.

52. The author will be exploring this subject in the near future.

53. The Smeeding study also dealt with the impacts of taxes and income underreporting on current income measures and poverty counts. In 1972 he found the numbers of poor households to be reduced from 9.96 million to 4.52 million (or from 15 percent of all households to 7 percent of all households) after adjusting income for taxes, underreporting, and the four in-kind transfers. This represented a 55 percent reduction in poverty.

54. Smeeding [16], Table 9-3, p. 316.

55. Bickel and MacDonald [1], Table 1. Revised numbers as shown in Maurice MacDonald, "Why Don't More Eligibles Use Food Stamps?", August 1975 (unpublished paper).

56. Alaska and Hawaii have high bonus values per person because allotment schedules are higher than for other states in order to compensate for higher food prices.

57. For information on these differences across states, see Subcommittee On Fiscal Policy [22], pp. 228-233.

58. These variations are half the size of those shown earlier in Medicaid.

59. For example, if the share of the U.S. poverty population across states explained all of the variance in the share of in-kind dollar transfers across states and if the coefficient relating the two variables were one, then a one percentage point rise in the in-kind transfer share would be associated with a one percentage point rise in the poverty population share across states and with no other variables. Even under such an unlikely happenstance, however, characteristics of the food stamp/poverty population across states -- most importantly the level and distribution of family incomes and average family size — would cause differing proportions of persons in poverty to be raised out of poverty across states by in-kind transfers.

60. Equations were not estimated for Medicare since it is not an income-tested program.

61. Dollar transfers in the low-rent public housing program are not available on a state-by-state basis.

To obtain copies of the report, *The Measure of Poverty*, or additional copies of this or any of the other Technical Papers, please write to:

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